

California Air Resources Board

Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation

Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

***Public Hearing Date: November 19, 2021, and
March 24, 2022***

Agenda Item No.: 21-12-6 and 22-5-1

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List of Abbreviations and Acronyms

AB	Assembly Bill
ABS	American Bureau of Shipping
ACE	Alternative Control of Emissions
ADF	Alternative Diesel Fuels
ADPF	Active Diesel Particulate Filter
AIS	Automated Information System
AQPSD	Air Quality Planning and Science Division
ASTM	ASTM International (formerly American Society for Testing and Materials)
ATB	Articulated Tug Barge
ATCM	Air Toxic Control Measure
AWO	American Waterways Operators
BAAB	San Francisco Bay Area Air Basin
BACT	Best Available Control Technology
BATS	Best Available Technology Standard
BC	Black Carbon
BD	Biodiesel
BenMAP	Environmental Benefits Mapping and Analysis Program
BMI	Body Mass Index
BOEM	Bureau of Ocean Energy Management
CA	California
CAA	Clean Air Act
CAECS	CARB Approved Emission Control Strategy
CAPCOA	California Air Pollution Control Officers Association
CAPP	Community Air Protection Program
CARB	California Air Resources Board
CCDET	California Council on Diesel Education and Technology
CCE	Catalina Channel Express
CCR	California Code of Regulations

CDC	Centers for Disease Control and Prevention
CDC WONDER	Wide-ranging Online Data for Epidemiologic Research
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERP	Community Emissions Reduction Plan
CF	California-Assigned Vessel Number
CFR	Code of Federal Regulations
CFV	Commercial Fishing Vessel
CHC	Commercial Harbor Craft
CI	Compression Ignition
CMA	California Maritime Academy
CO ₂	Carbon Dioxide
CORE	Clean Off-Road Equipment Voucher Incentive Project
CPF	Cancer Potency Factor
CPFV	Commercial Passenger Fishing Vessel
CPUC	California Public Utilities Commission
CR	Concentration-Response
CSU	California State University
CSV	Comma-Separated Values
DAC	Disadvantaged Community
DEF	Diesel Exhaust Fluid
DMV	Department of Motor Vehicles
DOC	Diesel Oxidation Catalysts
DOF	Department of Finance
DPF	Diesel Particulate Filter
DPM	Diesel Particulate Matter
DWT	Deadweight Tonnage
E.O.	Executive Officer
EA	Environmental Analysis

ECM	Engine Control Module
ER	Emergency Room
ESS	Energy Storage System
EU	European Union
FSOR	Final Statement of Reasons
GGFA	Golden Gate Fishermen's Association
GHG	Greenhouse Gas
GIS	Graphic Interface System
hp	Horsepower
HRA	Health Risk Assessment
HSC	Health and Safety Code
IMO	International Maritime Organization
IPT	Incidence Per Ton
ISA	Integrated Science Assessment
ISOR	Initial Statement of Reasons
MARPOL	International Convention for the Prevention of Pollution from Ships
MSC	Marine Safety Center
MT	Metric Tons
NAAQS	National Ambient Air Quality Standards
NGO	Non-Governmental Organization
NH ₄ NO ₃	Ammonium Nitrate
NLRA	National Labor Relations Act
NOAA	National Oceanic and Atmospheric Administration
NO _x	Oxides of Nitrogen
NREL	National Renewable Energy Laboratory
OEHHA	Office of Environmental Health Hazard Assessment
OEM	Original Equipment Manufacturer
OGV	Ocean-Going Vessel
OP90	Oil Pollution Act of 1990

PERP	Portable Equipment Registration Program
PM	Particulate Matter
PM10	Coarse Particulate Matter
PM2.5	Fine Particulate Matter
POLA	Port of Los Angeles
POLB	Port of Long Beach
ppm	Parts Per Million
PTSD	Post-Traumatic Stress Disorder
PWSA	Ports and Waterways Safety Act
RCW	Regulated California Waters
RD	Renewable Diesel
REMI	Regional Economic Models, Inc.
RMP	Risk Management Policy
ROG	Reactive Organic Gases
SAC	Sportfishing Association of California
SAE	SAE International (formerly Society of Automotive Engineers)
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SLA	Submerged Lands Act
SLCP	Short-Lived Climate Pollutants
SRIA	Standardized Regulatory Impact Assessment
SRP	Scientific Review Panel
TAC	Toxic Air Contaminants
U.S. EPA	United States Environmental Protection Agency
ULSD	Ultra-Low Sulfur Diesel
USCG	United States Coast Guard

UVI	Unique Vessel Identifier
VCC	Vessel Common Carrier
VDECS	Verified Diesel Emission Control Strategy
ZEAT	Zero-Emission and Advanced Technology

I. General

The Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report or ISOR), entitled “Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation,”¹ released September 21, 2021, and amended October 1, 2021, is incorporated by reference herein. The Staff Report contained a description of the rationale for the Amendments to the Commercial Harbor Craft Regulation (2022 Amendments). On September 21, 2021, all references relied upon and identified in the Staff Report were made available to the public.

As explained in the Staff Report, the 2022 Amendments are designed to achieve emission reductions through cleaner combustion and zero-emission technologies, which will provide significant health benefits, avoid premature death and mortality, and protect workers and on-vessel passengers from exposure to diesel and other combustion-generated air pollutants.

The 2022 Amendments accomplish these goals by applying more stringent requirements to in-use and new vessels, expanding the regulatory requirements to vessel categories that were previously exempt from in-use vessel requirements, and applying reporting, infrastructure, and other requirements onto facilities such as seaports, terminals, marinas, and harbors that conduct business with Commercial Harbor Craft (CHC). Amending the CHC Regulation (Current Regulation) will further reduce emissions from harbor craft by establishing expanded and more stringent requirements for CHC engines and mandates for accelerated deployment of Zero-Emission and Advanced Technology (ZEAT). The 2022 Amendments include modifications to two sections of the California Code of Regulations (CCR): title 17, division 3, chapter 1, subchapter 7.5 section 93118.5 and title 13, division 3, chapter 5.1, section 2299.5.

On September 21, 2021, the California Air Resources Board (CARB) released the Notice of Public Hearing (45-Day Notice) and Staff Report. On October 1, 2021, CARB staff issued an errata document and extended the 45-day comment period end date from November 8, 2021, to November 15, 2021. CARB received 3,264 written comments during the 45-Day Notice comment period.

On November 19, 2021, CARB held its first public hearing to consider the 2022 Amendments. The Board received 16 additional written comments and 95 oral comments from the public. After considering staff’s presentation of the 2022 Amendments and all public comments received, Board members highlighted the need for emission reductions from CHC to meet air quality goals and protect public health. Additionally, the Board directed staff to further evaluate the proposal to maximize the penetration of zero-emission and cleaner combustion technologies in the marine sector while minimizing the economic

¹ CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/isor.pdf>.

impact on CHC owners and operators, especially to small businesses and fleets owning a small number of vessels.

To respond to the Board's direction, CARB staff carefully reviewed the public comments, followed up with stakeholders who submitted information into the rulemaking record, and hosted a public webinar on January 12, 2022, to receive input on staff's proposed response to Board direction. Additionally, staff held over 30 individual meetings and dialogued with over 80 stakeholders by phone or email, presented to local air district board members, traveled in-person to meet with environmental justice and industry stakeholders, and reevaluated options for streamlining feasibility evaluations for vessel owners requesting compliance extensions.

On March 14, 2022, CARB staff posted written responses to the Draft Environmental Analysis (EA) and the Final EA for public review. On March 24, 2022, the Final EA, Response to Comments, Proposed Resolution 22-6, and recommended changes to the 2022 Amendments were presented at the second Board Hearing. At that hearing, the Board adopted Resolution 22-6.

Resolution 22-6 approved written responses to the Draft EA, certified the Final EA, and directed the Executive Officer (E.O.) to make the modified regulatory language and any additional conforming modifications available for public comment, with any additional supporting documents and information, for a period of at least 15 days as required by Government Code section 11346.8. The Board further directed the E.O. to consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days. The E.O. was given authority to both (1) either approve or disapprove proposed changes in regulatory language under Government Code section 11346.8, subdivision (c), and (2) conduct any appropriate further environmental review associated with such changes, consistent with the Board's Certified Regulatory Program regulations, at CCR, title 17, sections 60000-60008, for those sufficiently related substantial modifications.

Staff's proposed changes and supporting documents were made available for a 15-day comment period through a "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" (15-Day Notice). The 15-Day Notice and modified regulatory language were posted on May 19, 2022, for public review and comment through June 3, 2022. During the comment period, the Board received 10 additional written comments. Staff did not make any changes to the Regulation Order based on comments received during the 15-Day comment period.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text. The FSOR also contains a summary of the comments received during the formal rulemaking process by CARB on the 2022 Amendments or the process by which they were adopted, and CARB's response to those comments. This FSOR hereby incorporates by reference the

March 14, 2022, Response to Comments on the Draft Environmental Analysis² Prepared for the Proposed Amendments to the Commercial Harbor Craft Regulation.

A. Mandates and Fiscal Impacts to Local Governments and School Districts

The Board has determined that this regulatory action will result in a mandate to local agencies but not to school districts. However, the Board finds that these costs are not reimbursable by the State pursuant to Government Code, title 2, division 4, part 7 (commencing with section 17500) because this action neither compels local agencies to provide new governmental functions (i.e., it does not require such agencies to provide additional services to the public), nor imposes requirements that apply only on local agencies or school districts.³ Instead, this regulatory action establishes requirements that apply to all individuals and entities that own or operate regulated vessels and facilities. This action also does not compel local agencies to increase the actual level or quality of services that they already provide the public.⁴ For the foregoing reasons, any costs incurred by local agencies to comply with this regulatory action are not reimbursable.⁵

B. Consideration of Alternatives

Government Code Section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. During the development process of the 2022 Amendments, CARB staff solicited public input regarding alternatives to achieving the Regulation's goals. CARB staff requested input on alternatives in multiple public workshops since December 2018. Staff evaluated several alternatives to the proposal, including suggestions from both public and industry stakeholders, and selected two alternatives to the 2022 Amendments for formal evaluation. The two alternatives evaluated were proposed as less burdensome and equally effective in achieving the purposes of the 2022 Amendments.

For the reasons set forth in the Staff Report, in staff's comments and responses at the hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board.

² CARB, Response to Comments on the Draft Environmental Analysis, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/chcrtc.pdf>.

³ County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 56

⁴ San Diego Unified School Dist. v. Commission on State Mandates (2004) 33 Cal.4th 859, 877.

⁵ County of Los Angeles v. State of California, 43 Cal.3d. 46, 58.

The two alternatives staff evaluated, and the reasons for rejection, are described in the next section.

1. Alternative 1: No Low-Use Exception and No Extension for Vessels with Tier 4 Engines and Limited Operating Hours

Alternative 1 would amend the Current Regulation. For this alternative, there would be no low-use exception and no extension for vessels with Tier 4 engines and limited operating hours. All vessels would need to comply with the 2022 Amendments, even if they only operate for a limited number of hours. Although this alternative would reduce the time staff would spend on processing paperwork for low-use exemptions and compliance extensions, it would provide less flexibility for vessel owners and operators to comply with the 2022 Amendments.

Alternative 1 would require all vessels to install cleaner engines and retrofit controls, and in some cases replace entire vessels to achieve additional diesel particulate matter (DPM) reductions through diesel particulate filter (DPF) retrofits. This alternative provides less flexibility for a regulated party to select the best control option to best fit their unique operations. Vessel owners and operators would not have the option to choose how to comply. Vessels with limited operating hours and vessels operating a greater number of hours per year would both be required to install the same controls. Vessels with even a few operational hours per year would be required to install cleaner engines and new control technology, and in some cases replace their vessels to accommodate the emission control systems. Compliance costs would be the same for vessels regardless of operating hours, but operational revenue would differ substantially. Under Alternative 1, there could be competitiveness issues introduced into the vessel market.

Alternative 1 is estimated to cost \$282 million more than the 2022 Amendments from 2023 to 2038. Under Alternative 1, more vessels would need to be repowered and retrofitted to comply with the amended regulation, even though these vessels would only operate occasionally. Under this scenario, approximately 429 more vessels operating in Regulated California Waters (RCW), with a homebase at several California seaports, harbors, and marinas, would be subject to emission control requirements compared with the 2022 Amendments. Therefore, there would be higher costs for repowering and retrofitting additional vessels. A more detailed breakdown of Alternative 1 costs and savings can be found in the Standardized Regulatory Impact Assessment (SRIA) (Appendix C-1).

Alternative 1 projected greater fine particulate matter (PM2.5), DPM, and oxides of nitrogen (NOx) emission reductions compared to the 2022 Amendments and the Current Regulation. Alternative 1 supports NOx, PM2.5, and DPM emission reduction objectives.

Reason for Rejection

Alternative 1 would cost more, be less cost-effective to implement than the 2022 Amendments, and provides less flexibility. It would increase the overall cost of the 2022 Amendments by 16 percent while achieving 2 percent more reductions for NOx, and 2 percent more reductions for DPM and PM2.5 between 2023 to 2038, a relatively small

amount of emission reductions. CARB staff believes Alternative 1 is not appropriate for all vessels and would result in a more burdensome regulation to the vessel owners and operators, as compared to the 2022 Amendments. For CHC that visit California seaports infrequently, making expensive vessel modifications, even for a single vessel visit, would not be economical. Overall, CARB staff believes Alternative 1 would be less cost-effective to implement than the 2022 Amendments and would result in a more burdensome regulation to the vessel owners and operators, as compared to the 2022 Amendments. Therefore, Alternative 1 was rejected.

2. Alternative 2: No Requirements for Commercial Fishing Vessels

Alternative 2 differs from the 2022 Amendments because it does not include emission control requirements for commercial fishing vessels. The 2022 Amendments currently require commercial fishing vessels to begin using engines certified to Tier 2 or newer levels between 2030 and 2032.

Under Alternative 2, vessel owners and operators for other regulated in-use vessels (non-commercial fishing vessels) would have the requirements of meeting emissions performance standards equivalent to using Tier 3 or Tier 4 engines plus a DPF, which would be achieved through repowering engines, retrofitting engines, replacing vessels, or using other methods to reduce the emissions, subject to CARB approval. However, under Alternative 2, approximately 640 fewer commercial fishing vessels operating in RCW, with a homebase at several California seaports, harbors, and marinas, would be subject to emission control requirements of using Tier 2 or cleaner engines, compared with the 2022 Amendments.

Alternative 2 would provide less NO_x, PM_{2.5}, and DPM emission reductions compared to the 2022 Amendments. Alternative 2 would decrease the overall cost of the 2022 Amendments by 2 percent, while achieving 7 percent less reductions for NO_x and 7 percent less emission reductions for DPM and PM_{2.5}.

Reason for Rejection

As discussed in more detail in the SRIA (Appendix C-1), excluding commercial fishing vessels would forgo feasible emission reductions and result in fewer health benefits to the local communities, compared to the 2022 Amendments. Alternative 2 would fail to provide significant additional public health and air quality benefits for California's residents, especially communities adjacent to seaports and terminals. Overall, CARB staff believes Alternative 2 would not meet CARB's goals and objectives for the 2022 Amendments, as described in Chapter II of the Staff Report. Therefore, Alternative 2 was rejected.

II. Modifications Made to the Original Proposal

Subsequent to the March 24, 2022 Board Hearing, modifications to the original proposal were made at the Board's direction and to address comments submitted during the 45-day public comment period. CARB staff released a Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (15-Day Notice) on May 19, 2022,

which notified the public of additional documents added into the regulatory record and presented additional modifications to the regulatory text.

The following is a summary of the changes that were made to the initial proposal and were made available for a 15-day comment period. Staff proposed modifications to the 2022 Amendments to section 2299.5, title 13, division 3, chapter 5.1 of the California Code of Regulations (CCR) and section 93118.5, title 17, chapter 1, subchapter 7.5, CCR.

1. Proposed Modification to Section 93118.5 – Airborne Toxic Control Measure for Commercial Harbor Craft
 - a. Staff proposes to delete the first paragraph starting with “On January 1, 2023, subsection (e)(1), (e)(3) through (e)(6), and subsection (n) of title 13 of the California Code of Regulations...” The deletion is justified because the other 2022 Amendments clearly specify that the 2022 Amendments only apply to CHC and specified actions occurring on or after January 1, 2023, and consequently there is no need to repeal the provisions of the pre-existing regulation.
2. Proposed Modifications to Subsection 93118.5(b) – Applicability
 - a. In Subsection 93118.5(b)(5), staff removed “including but not limited to, obtaining any necessary approvals, exemptions, or orders from the U.S. Coast Guard” to remove redundant language without changing the intent and meaning of this provision.
3. Proposed Modifications to Subsection 93118.5(c) – Exemptions
 - a. In Subsection 93118.5(c)(3), staff changed “All other provisions in this section, including but not limited to, the compliance dates specified in Table 7, Table 9, and Table 10 of subsection (e)(6)” to “The compliance dates specified in Table 7, table 9, and Table 10 of subsection (e)(6) and all other provisions of this section.” This modification is necessary to remove vague language while keeping the intent of the provision intact.
 - b. In Subsection 93118.5(c)(5), staff added the phrase “or any other alternative fueled vessel that carries 6 or fewer passengers and that is not required to be documented with the U.S. Coast Guard pursuant to 46 CFR 67.7, as last amended on September 25, 2009, and 46 CFR 67.9 as published on November 15, 1993, which are incorporated by reference herein...” Staff inadvertently omitted this phrase from the initially 2022 Amendments, and the omission of this phrase has resulted in confusion and questions from industry stakeholders. Therefore, this added phrase is necessary to explicitly clarify staff’s original intent that the smallest non-diesel vessels that are not required to be documented with the U.S. Coast Guard are exempted from this section.
 - c. In Subsection 93118.5(c)(14), staff removed “and the regulated entity has used best efforts to anticipate and mitigate impacts of non-compliance, including but not limited to excess emissions”. This deletion is necessary to remove

redundant language without changing the intent of this provision, since “force majeure” is defined below in subsection 93118.5(d).

4. Proposed Modifications to Subsection 93118.5(d) – Definitions

- a. In Subsection 93118.5(d) in the definition of “Alternative Diesel Fuel”, staff removed “but are not limited to” to remove vague language without changing the meaning or intent of the definition.
- b. In Subsection 93118.5(d) in the definition of “Barge”, staff changed “Barges include but are not limited to deck barges...” to “Examples of barges include deck barges...” This revision is necessary to remove vague language and improve clarity without changing the meaning or intent of the definition.
- c. In Subsection 93118.5(d) in the definition of “Coast Guard Vessel”, staff deleted “but not limited to” to remove vague language without changing the meaning or intent of the definition.
- d. In Subsection 93118.5(d) in the definition of “Commercial Passenger Fishing”, staff changed “Commercial passenger fishing vessels include but are not limited to operations that provide both day and overnight trips, including those that voyage periodically in and out of Regulated California Waters” to “Commercial passenger fishing vessels include vessels operated on both day and overnight trips, including trips that may traverse in and out of Regulated California Waters” to remove vague language and improve clarity while maintaining the original intent and meaning of the definition.
- e. In Subsection 93118.5(d) in the definition of “Crew and Supply Vessel”, staff changed “and/or” to “or”, and deleted “but not limited to” to remove vague language without changing the meaning or intent of the definition.
- f. In Subsection 93118.5(d) in the definition of “Dedicated Emergency Use Vessel”, staff added the following sentence: “Vessels used to perform channel deepening, levee repair, and debris removal are not considered dedicated emergency use vessels.” This addition is necessary to clarify that the exemption for dedicated emergency use vessels in 93118(c)(12) only applies to fire suppression, police response, or emergency rescue, and to that to “protect public safety” as stated in the definition does not apply to other public works projects to build and repair infrastructure. Vessels conducting the activities specified in the newly added sentence are not considered dedicated emergency use vessels, and are subject to the requirements of the vessel’s primary category as defined in 93118.5(d).
- g. In Subsection 93118.5(d) in the definition of “Direct Control”, staff deleted “but is not limited to” to remove vague language without changing the meaning or intent of the definition.

- h. In Subsection 93118.5(d) in the definition of "Distributed Generation", staff deleted "but not limited to" to remove vague language without changing the meaning or intent of the definition.
- i. In Subsection 93118.5(d) in the definition of "Dredge", staff deleted "including, but not limited to" and two instances of "but are not limited to" to remove vague language without changing the meaning or intent of the definition.
- j. In Subsection 93118.5(d) in the definition of "Emission Control Strategy", staff changed "including, but not limited to" to "Examples include." This revision is necessary to remove vague language without changing the meaning or intent of the definition.
- k. In Subsection 93118.5(d) in the definition of "Excursion Vessel", staff changed "including, but not limited to" to "such as" to remove vague language without changing the meaning or intent of the definition, and "and" was changed to "or" for grammatical correction.
- l. In Subsection 93118.5(d) in the definition of "Facility", staff deleted "but is not limited to" to remove vague language without changing the meaning or intent of the definition.
- m. In Subsection 93118.5(d) in the definition of "Facility Owner", staff deleted "including but not limited to port authorities" to remove vague language without changing the meaning or intent of the definition.
- n. In Subsection 93118.5(d) in the definition of "Ferry", the phrase "Ferry vessels include, but are not limited to" was changed to "Examples of ferry vessels include" to remove vague language without changing the meaning or intent of the definition.
- o. In Subsection 93118.5(d) in the definition of "Harbor Craft", staff deleted "but not limited to" to remove vague language without changing the meaning or intent of the definition.
- p. In Subsection 93118.5(d) in the definition of "Pilot Vessel", staff deleted "but not limited to" to remove vague language and added "and utilized for" to add clarity to the definition without changing the meaning or intent of the definition.
- q. In Subsection 93118.5(d) in the definition of "Port", staff deleted "'Port' includes, but is not limited to, facilities also known as 'marine terminals' and 'roadsteads'" to remove vague language and redundancy. This revision does not change the meaning or intent of the definition, as the word "port" is commonly understood, and the remaining definition is clear.
- r. In Subsection 93118.5(d) in the definition of "Portable CI Engine", staff deleted "but are not limited to" to remove vague language without changing the meaning or intent of the definition.

- s. In Subsection 93118.5(d) the definition of "Recreational Vessel" was revised to remove redundant language stating that recreational vessels are those operated for personal use, and to clarify that commercial use of diesel-powered vessels are specifically excluded from the definition of "Recreational Vessel." This modification clarifies that commercial passenger fishing vessels (CPFVs) and other uninspected vessels that are permitted to carry 6 or fewer passengers (commonly known as "6-packs") and that are diesel-powered are not recreational vessels, and are subject to the requirements of the 2022 Amendments.
- t. In Subsection 93118.5(d) in the definition of "Repower", staff changed "including but not limited to" to "Repower includes" to remove vague language while keeping the intent and meaning of the definition intact.
- u. In Subsection 93118.5(d) in the definition of "Short-Run Ferry", staff added a phrase clarifying that the distance threshold of three nautical miles between two points is straight line distance. This addition is necessary to avoid confusion on how to measure the distance between two points, and to ensure that route distance, which can be changed by a vessel operator, cannot be used to determine the distance between two points to circumvent the three nautical mile threshold. Staff also added the phrase "to load or unload passengers" for vessels making multiple stops in a single round-trip. This addition is necessary to clarify that only stops for loading or unloading passengers are considered ferry stops, other stops such as stops for exchanging crews are not considered ferry stops for the purposes of this definition.
- v. In Subsection 93118.5(d) in the definition of "Supply Vessel", staff deleted "but not limited to" to remove vague language without changing the intent or meaning of the definition.
- w. In Subsection 93118.5(d) in the definition of "Temporary Emergency Rescue/Recovery Vessel", staff deleted "but not limited to" to remove vague language without changing the intent or meaning of the definition.
- x. In Subsection 93118.5(d) in the definition of "Workboat", staff deleted "including but not limited to duties such as hydrographic surveys, spill/response, school training, marketing (such as advertising), and construction (including drilling). Workboat can include vessels owned by public, private, and not-for-profit organizations." to remove redundant language as the definition is clear enough and the examples of specific duties are not needed. Staff also changed "WorkBoat" to "Workboat" for consistency with other instances of the term in the Regulation Order.
- y. In Subsection 93118.5(d) in the definition of "Zero-Emission", "and/or" was changed to "or" to remove vague language without changing the meaning or intent of the definition.

5. Proposed Modifications to Subsection 93118.5(e) - Fuel Use and Engine Emission Requirements

- i. In Subsection 93118.5(e)(6)(A)2.b., "January 2, 2009" was changed back to the original text of the Current Regulation stating "July 1, 2011" because staff inadvertently modified the text in the 45-Day package, and the inadvertent change was also not indicated in strikeout/underline format.
- ii. In Subsection 93118.5(e)(6)(A)2.c., 93118.5(e)(6)(A)3.c, and 93118.5(e)(8)(A)3., "including but not limited to, any of the following" was changed to "The E.O. will base their determination on the following information." This revision is necessary to remove vague language and clearly specify what information the E.O. will use to determine whether the vessel owner or operator's demonstration confirms that an in-use engine meets the applicable engine standards.
- iii. In Subsections 93118.5(e)(6)(C)2.c.i., 93118.5(e)(6)(C)3.c.i., and 93118.5(e)(6)(D)2.b., the reference to subsection "j" was changed to subsection "q" to correspond to the emission testing requirements that are modified and contained within a separate subsection number.
- iv. In Subsections 93118.5(e)(6)(E), staff deleted "including but not limited to, subsection (e)(6)(C)" to remove vague and redundant language without changing the intent or meaning of the provision.
- v. In Subsections 93118.5(e)(6)(E)2.b., staff changed "including but not limited to, information related to" to "regarding" to remove redundant language.
- vi. In Subsection 93118.5(e)(8), staff deleted the word "Diesel" from this subsection title because the proposed requirements apply to internal combustion engines fueled with other fuel types as well. This correction is consistent with the applicability provision in Subsection 93118(b)(1).
- vii. In Subsections 93118.5(e)(8), 93118.5(e)(9)(A)1., and 93118.5(e)(9)(B), staff deleted the phrase "enter into a contract to" to remove redundant language since selling and purchasing include entering a contract to sell or purchase.
- viii. In subsection 93118.5(e)(8), the word "scenario" was replaced with "criteria" for clarity and consistency with the rest of the proposed regulation language.
- ix. In subsection 93118.5(e)(8), "A through D" was replaced with "A through E", to indicate the addition of another allowable criterion that a person who acquires a new or in-use engine after January 1, 2023 may meet to satisfy the requirement of the subsection. That new criterion is set forth in proposed new subsection 93118.5(e)(8)(E), which specifies that acquiring an engine for installation into a vessel receiving the one-time ten-year extension for CPFVs is one of the allowable criteria.
- x. In Subsections 93118.5(e)(8)(A), 93118.5(e)(10)(B)1., 93118.5(e)(12)(C)1., 93118.5(e)(12)(C)2., and 93118.5(e)(13)(B), staff revised the original text for

engines requiring the most stringent emission standards to clarify that an engine is required to meet either the most stringent marine standards (Tier 3 or Tier 4) or the Tier 4 Final off-road standards. This clarification is consistent with staff's intent that operators can elect to use marine certified or off-road certified engines, and must use the most stringent tier level available within the certification category (marine or off-road).

- xi. In Subsections 93118.5(e)(8), 93118.5(e)(9)(A)1., 93118.5(e)(9)(B), staff removed "enter into a contract to" to avoid redundancy since selling, purchasing includes entering a contract to sell or purchase.
- xii. In Subsections 93118.5(e)(9)(A)4., and 93118.5(e)(12)(C)3., "and" was changed to "or" to clarify that the requirement in the applicable subsection establishes three separate and distinct performance standards, not three jointly applicable performance standards.
- xiii. In Subsection 93118.5(e)(9)(A)5., staff added the phrase "if the information submitted in the request and the exercise of good engineering judgement indicates the applicable performance standards cannot be met" to specify the information and criteria that the E.O. will rely upon in determining whether to approve a request under this subsection.
- xiv. In Subsection 93118.5(e)(9)(A)5., staff added a sentence "Notwithstanding the definition of 'new harbor craft' in subsection (d), a new harbor craft whose keel was laid before January 1, 2023 is subject to the requirements of (e)(12) and not of this subsection (e)(9)." This addition is necessary to clarify which subsection is applicable to a vessel that is under construction as of January 1, 2023.
- xv. In Subsection 93118.5(e)(9)(B)4., the word "are" was added as a grammatical edit.
- xvi. In Subsection 93118.5(e)(10)(A)2., staff deleted "which include but is not limited to reporting requirements set forth in subsection (m)" to remove redundant language while keeping the intent of the provision intact.
- xvii. In Subsection 93118.5(e)(10)(C)1.c.i., staff deleted "but not limited to" and added "or other power sources with zero tailpipe emissions." These revisions are necessary to remove redundant language and to provide additional clarification of zero-emission power sources, while keeping the intent and meaning of the provision intact.
- xviii. In Subsection 93118.5(e)(10)(C)1.d. on fueling infrastructure, the phrase "and/or" was changed to "or" to remove vague language while keeping the intent of the provision intact.
- xix. In Subsection 93118.5(e)(12)(B)1., staff deleted two instances of the word "diesel" because the proposed requirements apply to internal combustion engines fueled with other fuel types as well. This correction is consistent with the applicability provision in Subsection 93118(b)(1).

- xx. In Subsection 93118.5(e)(12)(B)4. staff added language specifying that engines above 600 kW meeting the Tier 4 + DPF performance standards must be available for purchase “12 months prior to” the compliance date for that system to be considered available. Subsection (e)(12)(B)3. already requires this for systems under 600 kW, so this change is necessary to clearly state that the same timeline for determining availability applies to systems above 600 kW.
- xxi. In Subsection 93118.5(e)(12)(B)4. staff added the phrase “provided that all criteria in subsection (e)(12)(E)2 are satisfied” to clarify that for engines over 600 kW, if no DPF is available to meet the Tier 4 + DPF performance standards, vessel operators are still required to meet Tier 4 standards if an engine of the applicable power and duty cycle ratings is available. This change is consistent with the existing language in Subsection (e)(12)(E)2.d.i. that describes the “cleanest engine requirement.”
- xxii. In Subsection 93118.5(e)(12)(B)6., staff deleted “but are not limited to” to remove vague language while keeping the intent of the provision intact.
- xxiii. In Subsection 93118.5(e)(12)(B)7. staff revised the list of approval exceptions to operating non-compliant engines in RCW to state “Vessel owners or operators who need to continue to operate engines after applicable compliance dates of this subsection to: perform emissions testing to support verification of a DECS; perform emissions testing to demonstrate compliance of their engines or vessel with requirements of subsection (e); collect data to support an ACE plan; sell a CHC that is only intended to operate beyond Regulated California Waters but will perform sea trials in RCW.” This revision clarifies that activities allowable by the 2022 Amendments in other subsections are also eligible to receive the exceptions for compliance for engines intended to be sold out of State and for the other approved purposes. The subsection maintains its original intent, including the requirement that all planned operation of non-compliant engines for the listed purposes must be pre-approved by CARB’s E.O.
- xxiv. In Subsection 93118.5(e)(12)(B)7. staff deleted the phrase “will need to” as it is no longer grammatically appropriate given the preceding edit to the same subsection.
- xxv. In subsection 93118.5(e)(12)(C)2, the word “replacing” was changed to “repowering or rebuilding” to be consistent with the language in the subsection title.
- xxvi. In subsection 93118.5(e)(12)(C)3, the word “and” was changed to “or” to clarify that the requirement in this subsection applies to three separate and distinct performance standards, not three jointly applicable performance standards.
- xxvii. In Subsections 93118.5(e)(12)(D), staff deleted “which include but are not limited to workboats, research vessels, pilot vessels, tank barges, and commercial passenger fishing vessels” to remove vague and redundant language while keeping the intent of the provision intact.

- xxviii. In Subsections 93118.5(e)(12)(D)1.b. and 93118.5(e)(12)(D)2.e., staff added the sentence "For in-use vessels that are in the process of an engine replacement so that there is no engine installed in the vessel on December 31, 2022, the compliance date is determined by the model year of the next engine that is installed in the vessel." Staff added this sentence to clarify how to determine compliance dates for vessels that do not have an engine installed on December 31, 2022, due to an in-progress repower or engine replacement.
- xxix. In Subsections 93118.5(e)(12)(D)2.b., staff deleted the phrase "including but not limited to" and added the phrase "the following" to remove vague language and clearly specify what information is required for demonstrating that an engine was rebuilt to conform with United States Environmental Protection Agency (U.S. EPA) Tier 3 or Tier 4 marine standards.
- xxx. In Subsection 93118.5(e)(12)(D), within Table 16, staff changed one engine model year field from "2002-2007" to "2002 and later" to clarify that this compliance date also applies to Tier 1 engines with model years later than 2007. It came to staff's attention that some model year 2008 and newer engines are still certified to the Tier 1 standards. Without this clarification, some Tier 1 engines would be excluded from meeting the requirements for in-use engines as set forth in subsection (e)(12).
- xxxi. In Subsection 93118.5(e)(12)(E)1.b.iii., staff replaced "such as but not limited to" with "including" to remove vague language while keeping the intent of the provision intact.
- xxxii. In Subsection 93118.5(e)(12)(E)2.b.iii., staff deleted "but not limited to" to remove vague language while keeping the intent of the provision intact.
- xxxiii. In Subsection 93118.5(e)(12)(E)2.d.i., staff added the phrase "by applicable compliance dates to receive an extension for DPFs" to emphasize that the cleanest engine requirement must be met by applicable compliance dates in order to receive an extension for DPFs.
- xxxiv. In Subsection 93118.5(e)(12)(E)2.d.ii., staff deleted the words "need to" as a grammatical correction.
- xxxv. In Subsection 93118.5(e)(12)(E)3.a., staff added a new proposed provision for a one-time ten-year feasibility extension for CPFVs that meet Tier 3 or more stringent emission standards by December 31, 2024. Staff also added the word "either" to clarify that either this new proposed ten-year extension option or the originally proposed two-year extension option (up to four extensions of two years each totaling up to eight years), but not both, can be used for CPFVs. Staff also added the phrase "for any regulated in-use vessel category" to clarify that the two-year extension option applies to any of the regulated in-use vessel categories.
- xxxvi. In Subsection 93118.5(e)(12)(E)3.b., staff added a phrase clarifying that the application requirements to demonstrate technical and financial infeasibility for

the two-year extension option do not apply to the proposed one-time, ten-year compliance extension option for CPFVs. The application requirements of the one-time ten-year compliance extension for CPFVs are described separately in (e)(12)(E)3.d.

- xxxvii. In Subsection 93118.5(e)(12)(E)3.b., staff changed the phrase “and/or” to “or” to remove vague language while keeping the intent of the provision intact.
- xxxviii. In Subsection 93118.5(e)(12)(E)3.b., staff added “or stability” to clarify staff’s intent that vessel stability is considered a factor when demonstrating the feasibility of installing engines or DPFs, as vessel stability is a key safety requirement assessed by the U.S. Coast Guard for vessel modifications.
- xxxix. In Subsection 93118.5(e)(12)(E)3.b., staff added the phrase “or no later than 9 months before the December 31, 2023 compliance dates” to clarify that in the single case of a 12/31/2023 compliance date, the E3 feasibility extension’s application deadline is 9 months in advance, instead of 18 months. This change is necessary because staff do not anticipate the 2022 Amendments to take effect until 1/1/2023, so staff cannot accept applications 18 months in advance in this case. CARB staff will prepare to process these initial applications in early 2023.
- xl. In Subsection 93118.5(e)(12)(E)3.b.iii., staff inserted the phrase “vessel-specific” to differentiate vessel-specific technical feasibility analyses from non-vessel-specific analyses. Staff also added the sentence, “Non vessel-specific third-party naval architect analyses for vessels with hull materials of wood, fiberglass, or fiberglass-reinforced plastic can only satisfy this requirement for the initial two-year extension.” This addition is made to clarify that third-party feasibility analyses, such as the CMA study, can be used to demonstrate a lack of technical feasibility for vessel repowers for wood, fiberglass, or fiberglass-reinforced plastic vessels only for the first two-year extension application.
- xli. In Subsection 93118.5(e)(12)(E)3.b.iv., staff revised the language to clarify that if vessel owners or operators are able to demonstrate that reducing 25 or more percent passenger capacity would increase emissions (such as by increasing the number of vessel trips), then passenger capacity reductions of 25 percent or more resulting from vessel modifications to accommodate engines and DPFs would be considered not feasible for the purpose of receiving extensions. This revision provides additional clarity while maintaining the original intent and purpose of the provision.
- xlii. In Subsection 93118.5(e)(12)(E)3.c., staff added the phrase “If an applicant receives a two-year extension” to clarify that a renewal under this subsection is only applicable for a two-year feasibility extension, and is not applicable for the one-time, ten-year extension option for CPFVs.

- xliii. Staff added a new subsection 93118.5(e)(12)(E)3.d. to add seven specific proposed provisions containing application criteria and other provisions for the one-time, ten-year extension option for CPFVs.
 - i. New Subsection 93118.5(e)(12)(E)3.d.i. states “Applications are due to CARB no later than July 1, 2024 and must include information requested in subsections (e)(12)(E)3.d.ii, iii, and iv below.” This subsection establishes the deadline for submitting the application for the ten-year extension option and specifies what information must be included in the application package.
 - ii. New Subsection 93118.5(e)(12)(E)3.d.ii. states “Applications must include a demonstration that engines meet either Tier 3 marine or Tier 3 off-road standards, or more stringent marine or off-road standards by December 31, 2024, or a purchase order including the engine manufacturer, rated horsepower, purchase date, sales price, and anticipated date of delivery, that confirms engines meeting Tier 3 marine or Tier 3 off-road standards, or more stringent marine or off-road standards have been ordered by July 1, 2024. If such engines are not installed by March 31, 2025, the owner or operator must submit documentation to CARB demonstrating a continued engine manufacturer or shipyard delay by April 30, 2025 and every six months until Tier 3 engines are installed.” This language describes what vessel owners or operators must do to receive the ten-year extension, and by when. Specifically, the engine purchase order date can be used to satisfy requirements for the ten-year extension if Tier 3+ engines are not installed by December 31, 2024, but if using this pathway and engine(s) have not been installed by March 31, 2025, operators would be required to report to CARB by April 30, 2025 to document why Tier 3 engines have not yet been installed, and every 6 months thereafter.
 - iii. New Subsection 93118.5(e)(12)(E)3.d.iii., states “Applications must include a demonstration that vessels have engaged, and will continue to engage, in commercial passenger fishing vessel activities at least 50 days per calendar year between January 1, 2023 and December 31, 2034.” This language is intended to prevent vessels which are capable of operating as CPFVs, but only do so on a limited time basis, from receiving the one-time ten-year extension intended only for vessels which are primarily CPFVs.
 - iv. New Subsection 93118.5(e)(12)(E)3.d.iv., states “Applications must describe how owners and operators are preparing and planning financially to meet requirements of subsection (e)(12) by December 31, 2034.” This addition is necessary for vessel owners or operators to demonstrate their intentions toward, and means of, meeting emission requirements by December 31, 2024, and to provide information for CARB staff to evaluate when performing the Midterm

Review of requirements for CPFVs that is scheduled to be provided to the Board by 2028.

- v. New Subsection 93118.5(e)(12)(E)3.d.v., states “Engines must meet the applicable requirements, including either Tier 3 or 4 + DPF as outlined in Table 11-13 or qualify for low-use exemptions as contained within subsection (e)(14) by December 31, 2034.” This language describes the compliance obligation by December 31, 2034 when the ten-year extension ends for the vessel owners or operators receiving this extension.
- vi. New Subsection 93118.5(e)(12)(E)3.d.vi., states “Engines on commercial passenger fishing vessels receiving a ten-year extension shall meet the additional recordkeeping requirements in subsection (m)(21) and report to CARB according to subsection (o). Owners and operators can maintain that data and information required by this subdivision is confidential pursuant to 17 CCR sections 91000 through 91022.” This language describes the additional recordkeeping requirements for vessels receiving the ten-year extension and provides the basis for maintaining confidentiality of reported data that contains confidential business information.
- vii. New Subsection 93118.5(e)(12)(E)3.d.vii. states “Owners or operators receiving a ten-year extension shall endeavor to coordinate with, and contribute to, technical working group meetings overseen by CARB that serve to assess the commercial availability of zero-emission technology, technical feasibility of repowering vessels to meet Tier 4 + DPF standards, and financial feasibility of emission reduction strategies for the commercial passenger fishing vessel fleet. The E.O. will consider recommendations from the technical working group when conducting biennial technology reviews and for the Midterm Review that will be conducted by 2028. The Midterm Review will focus on requirements affecting the commercial passenger fishing vessel fleet and will be considered by the Board to direct staff to develop potential regulatory amendments.” This language is necessary to secure engagement with CPFV operators to ensure that the biennial technology and implementation reviews, and the 2028 Midterm Review on the requirements for CPFVs, consider best available data from the CPFV owners, operators, and industry representatives.
- xliv. In Subsection 93118.5(e)(12)(E)5.a. staff added the word “single” and the phrase “if one or more criteria as set forth in subsection (e)(12)(E)5.b. below are met” to clarify that although there are four ways to qualify for the one-time, one-year scheduling extension, that only one scheduling extension may be granted for a single engine.
- xlv. In Subsection 93118.5(e)(12)(E)5.b.i. staff added word “of” as a grammatical edit and added the language that applicants must “provide a copy of the

purchase order or contract for the new equipment” to clarify that this form of documentation is required to be included in applications for this extension.

- xlvi. In Subsections 93118.5(e)(12)(E)5.b.iii. and 93118.5(e)(12)(E)5.b.iv, staff added language to clarify that scheduling extensions cannot be granted outside the intent of minimizing downtime for the fleet. These changes clarify that this extension was only established to minimize downtime for repowering fleets with multiple engines or vessels, and not delay compliance. Staff made additional grammatical modifications to these two subsections for clarity and accuracy.
 - xlvii. In Subsection 93118.5(e)(13)(A), staff added the sentence “Commercial fishing vessels with Pre-Tier 1, or Tier 1 engines may be sold or purchased prior to their compliance dates.” This addition is necessary to clarify that commercial fishing vessels with engines that do not meet Tier 2 or newer emission standards can still be bought or sold in-state until their compliance dates.
 - xlviii. In Subsection 93118.5(e)(13)(B), the words “and Newly Acquired” were removed from this subsection title, as the subsection text only refers to newly built vessels, not newly acquired in-use vessels. Staff inadvertently included this language in the original 45-day package, which contradicts the requirements of Subsection 93118.5(e)(13)(A).
6. Proposed Modifications to Subsection 93118.5 (f) - Alternative Control of Emissions (ACE)
- a. In Subsections 93118.5(f), 93118.5(f)(1)(G), and 93118.5(f)(1)(J), staff added “(e)(7)” to the list of requirements that could fall within the scope of an ACE plan. This change is necessary to clarify that operators can consider a deviation from the (e)(7) renewable diesel requirements if this is part of their ACE plan which demonstrates lower or equal emission reductions compared with nominal compliance while meeting the requirements of subsection (e)(7).
 - b. In Subsection 93118.5(f)(1)(A), staff added the sentence “All engines receiving extensions as part of an ACE plan must meet the applicable compliance requirements of subsections of (e)(7), (e)(10), (e)(12), and (e)(13) by December 31, 2034” to clarify that even if engines are permitted to operate past their compliance dates due to an approved ACE plan, engines must still meet emission requirements no later than 12/31/2034. This clarification is critical to ensure that after an ACE plan is developed, approved, and expired, that in 2035 and ongoing emissions will continue to meet the intended reductions of the 2022 Amendments.
 - c. In Subsection 93118.5(f)(1)(E), staff deleted “but are not limited to” to remove vague and redundant language while keeping the intent of the provision intact.
 - d. In Subsections 93118.5(f)(1)(F)3., 93118.5(f)(1)(H)1., and 93118.5(f)(1)(J), and 93118.5(f)(2), staff removed the requirements for ACE applications prior to

January 1, 2023 because the baseline for ACE applications under the 2022 Amendments starts on January 1, 2023.

- e. In Subsection 93118.5(f)(1)(l), staff changed the proposed added sentence specifying that the ACE application must not use equipment acquired by funds or grants that prohibit use of funds to comply with State regulations, laws or mandates. In the sentence, staff changed the originally proposed phrase “cannot be used” to “prohibit use of funds” to improve clarity of intent and readability of the language in response to stakeholder feedback that the originally proposed language was confusing.
 - f. In Subsection 93118.5(f)(2)(A), staff added the phrase “on and” to clarify that the stated application deadline for ACE applies on and after January 1, 2023.
7. Proposed Modifications to Subsection 93118.5(i) – Facility Infrastructure Requirements
- a. In Subsection 93118.5(i)(1)(B), staff added a sentence “Idling and auxiliary operation limits set forth in subsection (h)(1) do not apply to auxiliary engines above 99 kW.” This sentence clarifies that facility owners or operators are not responsible for installing shore power for auxiliary engines greater than 99 kW.
 - b. In Subsection 93118.5(i)(1)(C), staff replaced the word “defined” with the phrase “associated with the definition of ‘distributed generation’” to clarify that the emissions standards that must be met are defined in subsection (d).
 - c. In Subsection 93118.5(i)(1)(D), staff added the word “year” as a correction because it was missing in the paragraph.
8. Proposed Modifications to Subsection 93118.5(m) - Recordkeeping Requirements
- a. In Subsection 93118.5(m)(3), staff added the phrase “prior to January 1, 2023, and for all engines on and after January 1, 2023” to clarify that this subsection also applies to internal combustion engines fueled with non-diesel fuel types starting when the 2022 Amendments take effect on January 1, 2023.
 - b. In Subsection 93118.5(m)(15), the word “diesel” was removed from this subsection because the subsection applies to internal combustion engines fueled with other fuel types as well. This correction is consistent with the applicability provision in Subsection 93118(b)(1).
 - c. New Subsection 93118.5(m)(21) states “For commercial passenger fishing vessels receiving a one-time, ten-year extension as set forth in subsections (e)(12)(E)3.a. and (e)(12)(E)3.d., the following information shall be kept for each vessel:” to add three specific recordkeeping requirements for CPFVs receiving a ten-year feasibility extension as set forth in subsection 93118.5(e)(12)(E)3.
 - i. New Subsection 93118.5 (m)(21)(A) states “An annual profit and loss report”. This addition is necessary so that records of revenue are available for both CPFV operators and CARB staff to jointly evaluate

operator preparations to meet emission requirements later, and calculate historical average ticket prices for a passenger-day of sportfishing.

- ii. New Subsection 93118.5 (m)(21)(B) states "Total service days by calendar year." This addition is necessary so that the number of days the vessel is operated each year is recorded. This information is necessary to evaluate the activity of vessels to verify continued eligibility annually during the ten-year extension period, refine the emission inventory, and evaluate financial impacts.
- iii. New Subsection 93118.5 (m)(21)(C) states "Number of passenger-days by calendar year. A passenger-day is considered a person sportfishing for a full day or multiple people sportfishing for shorter periods summing to a full day. For example, an owner offering: a 4-hour trip to 20 anglers would be 10 passenger-days; a 6-hour trip to 20 anglers would be 15 passenger-days, and a 3-day trip to 20 anglers would be 60 passenger-days." This addition is necessary to quantify the time passenger sportfishing occurred and standardize the reporting basis in units of passenger-days. This information will be necessary when longitudinally evaluating the demand and activity of sportfishing at various ticket prices.

9. Proposed Modifications to Subsection 93118.5(o) – Reporting Requirements

- a. Four references to the recordkeeping requirements which were previously phrased as "(m)(14) through (m)(20)" were changed to "(m)(14) through (m)(21)" in response to the addition of the (m)(21) subsection for additional recordkeeping. This requirement is necessary so that in addition to the recordkeeping conducted by CPFV owners and operators, CARB receives records annually for vessels receiving the one-time ten-year extension.

10. Proposed Modifications to Subsection 93118.5(p) – Violations

- a. In Subsection 93118.5(p)(2), staff deleted the phrase "but not limited to" to remove vague language while keeping the intent of the provision intact.

11. Proposed Modifications to Subsection 93118.5(q) – Methods to Demonstrate Compliance with Engine and Fuel Standards

- a. In Subsection 93118.5(q)(1), staff added the following sentence: "When conducting testing procedures, engines may be fueled using CARB diesel, or U.S. EPA nonroad diesel fuel meeting the specifications contained in 40 CFR 80.29 as it existed on April 27, 2010, and 69 FR 38958 (June 29, 2004)." This addition is necessary to clarify that engines are not required to use renewable diesel if engines are operated within RCW to perform dedicated emissions testing to demonstrate compliance with the performance standards.

III. Documents Incorporated by Reference

The regulation and the incorporated certification procedures, test procedures, or other documents adopted by the E.O. incorporate by reference the following documents:

- 46 Code of Federal Regulations (CFR) Subchapter U, as it existed on April 27, 2010, incorporated in subsection (d) Definitions, (e) Fuel Use and Engine Emission Requirements, and (q) Methods to Demonstrate Compliance with Engine and Fuel Standards.
- International Organization for Standardization (ISO) 22241, as it existed in February 2019, incorporated in subsection (d) Definitions.
- 46 CFR Part 67.7 as last amended on September 25, 2009, and 46 CFR 67.9 as published on November 15, 1993, incorporated in subsection (c) Exemptions.
- SAE International (formerly Society of Automotive Engineers) (SAE) J1667 Recommended Practice, as it existed in February 1996, incorporated in subsection (k) Opacity Testing and Emission Control Repair Requirements.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the CCR. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the regulation. Distribution to all recipients of the CCR is not needed because the interested audience for these documents is limited to the technical staff at a portion of reporting facilities, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available from college and public libraries, or may be purchased directly from the publishers.

IV. Summary of Comments and Agency Response

Written comments were received during the 45-day comment period in response to the November 19, 2021, public hearing notice and written and oral comments were presented at the Board Hearing on November 19, 2021, and the Board Hearing on March 24, 2022. The 15-Day Notice and modified regulatory language were posted on May 19, 2022, for public review and comment through June 3, 2022. A full list of organizations and individuals that provided comments during the 45-day comment period, during both Board Hearings, and during the 15-day comment period can be found in Appendix A to this FSOR.

CARB would like to express its deep appreciation to the numerous organizations, agencies, and individuals that participated in the amendment process for the CHC Regulation since workshops began in 2018. Your advice, comments, and support contributed to the development of the 2022 Amendments that will prove practical and useful in the reduction of air pollutants and greenhouse gas (GHG) emissions. That so many dedicated their time and energy over the years is a testament to the importance of these 2022 Amendments.

A summary of comments on the 2022 Amendments, as well as responses, are categorized and provided below. Comment letters received during the public review period and further information are posted on the CHC rulemaking website.⁶

A. Comments Received during 45-day comment period, at the Board Hearing on November 19, 2021, and at the Board Hearing on March 24, 2022

1. Comments in Support of the 2022 Amendments

a. General Support

CARB received broad support from a range of organizations and stakeholders. The following commenters support the objectives and goals of the 2022 Amendments.

(726) (1057) (1650) (2359.1) (2391) (2460.1) (2569) (2579) (2618) (2621.1) (2623) (2624) (2627) (2913) (2918) (3036.3) (3078) (3081) (3106.3) (3268.1) (3273) (3274) (3275.1) (3277) (3285) (3291.1) (3304.1) (3322.1) (3324.1) (3325) (3327) (3328) (3331.1) (3336) (3337.1) (3343) (3345) (3347) (3348) (3360) (3380.1) (3387) (3395) (3403) (3422) (3433) (3434) (3435) (3437) (3439) (3442) (3443)

Summary of Comment 726 et al.: These comments broadly supported the 2022 Amendments, some indicating that technology such as Selective Catalytic Reduction (SCR) systems, DPF, and diesel oxidation catalysts (DOC) are widely available today and have been in use on off-road engines since 2007. Comments indicated that proper application engineering over the past 20 years has resulted in the successful installation of these technologies on a variety of marine engines today. Many other comments indicated that the 2022 Amendments would save lives, and that harbor craft are a significant source of health risk for portside communities.

Response 726 et al.: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comments. CARB staff appreciates the support for the 2022 Amendments' goals of improving public health and air quality benefits and reducing emissions from harbor craft.

Comment 828: "On behalf of Earthjustice, I submit the following letters from Earthjustice supporters encouraging the California Air Resources Board (CARB) to move forward on several life-saving regulations, like the Commercial Harbor Craft rule, to combat deadly diesel pollution (appended as "Attachment A"). Last year, more than 3,400 Californians submitted letters advocating for CARB to adopt strong regulations to control pollution from commercial harbor craft and other sources of diesel pollution as quickly as possible. This overwhelming support for these regulations indicates that Californians are eager for agencies, including CARB, to take bold action to reduce emissions from significant sources of air pollution in the State. CARB's proposed amendments to the Commercial Harbor Craft

⁶ CARB, Commercial Harbor Craft <https://ww2.arb.ca.gov/rulemaking/2021/chc2021>

rule is a critical step towards reducing pollution from harbor craft, one of the top three sources of diesel pollution at the San Pedro Bay Ports and the Port of Oakland. This rule will provide significant health benefits, particularly to portside communities that bear disproportionate pollution burdens from this industry. We appreciate your consideration of these letters, and we look forward to working with the Air Resources Board to clean up harmful pollution from the freight industry.”

Comment 828 includes an attachment with over 3,400 letters from Californians with the following message:

“I write to request strengthening regulations to clean up harmful air pollution from the freight industry. For decades, this industry has harmed our lungs and our climate. Cleaning up ships, which burn some of the dirtiest fuels in the world while they are at berth, is a critical strategy to protect us from harmful air pollution. In addition, moving swiftly to adopt life-saving regulations to clean up transportation refrigeration units and commercial harbor craft is critical to providing cleaner air to all Californians. As we seek to clean up the air and clean up climate pollution, these three regulations are amongst the most critical - especially because they provide greater protections for the disproportionately harmed Californians living near our major freight ports and warehouses.

It has come to my attention that industry lobbyists are fighting hard to prevent your agency from adopting these life-saving and common-sense regulations. We ask that you have the courage to defend our lungs and public health by adopting these regulations, even in the face of these powerful interests. With your leadership, we can make California's skies cleaner and defeat harmful climate pollution.”

Response 828: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment. See Response 726 et al.

CARB staff acknowledges the 3,400+ individuals that submitted remarks to Earthjustice, and thanks them for their support.

Comment 2603: “On behalf of Ocean Conservancy, please find attached 244 comments from Ocean Conservancy's Californian ocean advocates encouraging adoption of a strong harbor craft rule.”

Comment 2603 includes an attachment with 244 letters with the following message:

“I am writing today to urge you to strengthen the Commercial Harbor Craft Regulation for the sake of our climate and public health. Harbor craft, such as tugboats, ferries, barges and dredges, produce particulate matter and nitrous oxide due to their use of dirty fossil fuels.

Particulate matter gets into your lungs, weakens your immune system, and causes ground-level ozone, which can reach unhealthy levels on hot days. The technology exists for zero-emissions boats and ships: Just like cars and trucks, boats and ships must transition off fossil fuel.

I appreciate that this rule includes a first-in-the-nation requirement for almost 200 vessels to zero-emissions vessels by 2030. While this is a key step, CARB should expand the scope of

their considerations to include other harbor craft segments such as ferries, tugboats, dredges, and barges. Giving these segments a zero-emissions target by 2035 would provide a clear regulatory trajectory for owners. Taking this step, and ultimately taking similar steps for all components of the maritime sector as this becomes technologically feasible, is essential to the ultimate decarbonization of the maritime sector. It is also essential that CARB provides the necessary avenues to funding or grants for all vessel types to meet compliance.

Creating a market for zero-emissions harbor craft will build a strong market for next generation vessels here in the United States, creating new jobs while reducing our impact on the climate and air quality. Rather than prolonging the use of dirty diesel engines, California and other states must chart a rapid course away from fossil fuels altogether. Properly supported by CARB, this transition can be done smoothly and quickly. There are currently over 300 zero-emission ships powered by batteries in operation in the world, with another 194 on order. The cost of inaction far outweighs the price of implementation for this rule, which could save billions of dollars in averted negative health outcomes alone.

Climate change and its ocean impacts are here now, and promise to get worse if we don't act. I urge CARB to take action now to tackle this global threat."

Response 2603: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment. See Response 726 et al. and Response 1094.1 et al.

CARB staff acknowledges the 244 individuals that submitted remarks to Ocean Conservancy and thanks them for their support.

See Response to Comment 2603-1 in the Response to Comments on the Draft EA.

Comment 3035: "This letter is in response to your staff's request for clarification regarding the process for a vessel common carrier (VCC), subject to the California Air Resources Board's (CARB) Proposed Amendments to the Commercial Harbor Craft (CHC) Regulations, to request a modification of its fares from the California Public Utilities Commission (Commission or CPUC).

The Commission governs VCC fares through Public Utilities Code §§ 451 et seq., Rule 3.2 of the Commission's Rules of Practice and Procedure, and Commission General Order 117A (<https://www.cpuc.ca.gov/regulatory-services/licensing/transportation-licensing-and-analysisbranch/passenger-stage-corporation-and-vessel-common-carrier>).

If a VCC applies to the Commission to obtain authorization to modify its fares in response to CARB's CHC Regulations, the application would go through the Commission's formal application process. In this process, applications are assigned to a CPUC Commissioner and an Administrative Law Judge to facilitate the development of the public record and bring a Proposed Decision to the Commission for a vote. The Commission has the discretion to approve, deny or modify any application. It is also important to note that Commission proceedings may take up to twelve months or longer before a Commission Decision is issued.

I appreciate your staff's active engagement with us, and we look forward to continuing to work with you throughout the development of the proposed amendments.

Thank you,

Douglas Ito

Director, Consumer Protection and Enforcement Division"

Response 3035: CARB staff made no changes to the Regulation Order based on the received comment. CARB staff appreciates the California Public Utilities Commission (CPUC) helping staff understand the procedures to change Vessel Common Carrier (VCC) fares, and providing this comment outlining these procedures.

Comment 3185.1: "First and foremost, we urge CARB to stand firm in rejecting any efforts by industry to weaken the rule from its current draft. As written, CARB's amended CHC rule will yield significant public health benefits for Californians, especially those living in low-income communities of color. As you know, commercial harbor craft are one of the top three cancer risks for Californians living near the ports of Los Angeles, Long Beach, San Diego and Oakland. The proposed rule will protect thousands of Californians from asthma, cancer and other health risks and will save 500 Californians from premature death. The proposed rule mitigates negative health outcomes valued at over \$5.25 billion — 2.5 times more in savings than what it will cost companies to implement changes.

In total, this landmark rule will reduce diesel particulate matter (DPM) emissions from CHC in California by 89% and smog-forming nitrous oxide (NOx) emissions by. In so doing, the proposed rule lowers CHC-related cancer risk (>1 in a million) for nearly 15 million California residents in the areas evaluated (South Coast and Bay Area regions), reduced from 22 million under the current regulation to 7 million.

CARB must not walk back from these lifesaving amendments. The South Coast region is not on track to achieving the health-based air quality standards required under the US Clean Air Act, and the health and economic consequences of non-attainment are huge. Every sector that emits as much as this one does must play a part in reaching clean air, and no industry can be exempted from needed pollution reductions without putting additional stress on residents' health and additional burdens on other industries.

Secondly, we acknowledge that the proposed CHC rule will include a first-in-the-nation zero emission mandate for the maritime sector, moving almost 200 vessels to 100% zero-emission this decade. In so doing, CARB will be helping catalyze zero-emission vessel innovation within the maritime sector and advance the land-side clean fuels and clean energy transition California ports desperately need to accelerate.

To these ends, we are particularly supportive of the following in the latest rule as proposed:

1. Expanded Vessel Categories: The additional CHC vessel categories to in-use requirements make sense, fit the definition of a harbor craft, and would help achieve additional emission reductions.

2. Zero-emission requirements on the two segments: We appreciate the zero-emission requirement for short run ferries traveling 3 nautical miles and a zero-emission “capable” emphasis for excursion vessels. These two areas are ripe for going to zero-emission.
3. Methane performance standard: We appreciate the revision to the methane performance standard to the rule of 1.0 g/bhp-hr.”

Response 3185.1: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 726 et al.

b. Verification Process

(3036.2) (3036.4) (3268.2)

Summary of Comment 3036.2 et al.: These comments, while in support of the 2022 Amendments, urged CARB to consider potential flexibilities during verification of these retrofits. For example, additional in-use testing as well as on-board monitoring and reporting could be used to confirm that retrofits are performing as verified rather requiring significant up-front testing.

Response 3036.2 et al.: CARB staff made no changes to the Regulation Order based on the received comments. CARB will verify DPF aftertreatment devices according to the Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (Verification Procedure)⁷ adopted by our Board. The emissions testing required in the Verification Procedure ensures that an emission control system is durable and compatible with various engines and applications, and real emission reductions will be achieved with the use of the CARB verified device.

c. Engine Availability

Comment 1780.1: “Corvus Energy is a pioneer in maritime energy storage systems (ESSs), and it can be used for almost every vessel type breaking the ground for future development. We powered the world’s first electric commercial fishing vessel “Karoline” in 2015 and the world’s first all-electric ferry, the Norled Ampere. The ZeeTug30 designed and built by Navtek Naval Technologies has Corvus Energy ESS onboard. In addition, Corvus Energy supplies batteries for various types of workboats, ranging from small harbour vessels to larger workboats of various kinds, enabling energy optimization and zero-emissions operations.”

Response 1780.1: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

⁷ CARB, Verification Procedure For In-Use Strategies to Control Emissions From Diesel Engines, last accessed July 16, 2021, <https://ww2.arb.ca.gov/ourwork/programs/verification-procedure-use-strategies-control-emissions-diesel-engines>.

Comment 2599.2: "NAVTEK is a well experienced company in the maritime sector and in innovative marine technologies including energy, fully electrical marine vessels, renewable energy, low carbon shipping-port development.

The electrification for marine vessels has now been considered as a proven technology contributing to a decarbonized sustainable maritime sector. We are witnessing a fast-evolving climate friendly global technological shift that requires more integrated approaches entailing alternative fuels, wind and solar energy, renewable hydrogen, fuel-cell technologies, zero emission dockyards, autonomous vessels, and many more to overcome the evidence based expected ecological catastrophe.

NAVTEK was the builder and designer of the all-electric GisasPower tugboat (ZEETUG30). The prototype has been delivered in early 2020 and successfully delivered the heavy-duty daily operations since then. We have 3 more ZEETUG's under construction.

NAVTEK ZEE-TECH represents the new generation green and high technology by being rechargeable and fully electric with almost no noise and vibration. This innovative design allows the vessels to operate powerful with higher efficiency in line with not harming the environment (emission free). The NAVTEK rechargeable and all electric battery driven technology can be adapted to any short distance operation profiled vessel (ferry, sea-taxi, workboats and such)."

Response 2599.2: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3280: "Thank you very much, Madam Chair, CARB, Board, and staff. I'm Barry McCooey. And I'd like to introduce M&H Engineering, and our range of certified EPA Tier 4 marine engines that comply with the proposed CARB regulations below 600 kilowatts. Our engines reduce CO2 by 30 percent, particulate matter 97 percent, and NOx by 96 percent compared to a Tier 1 engine.

I've read through the 3,265 comments submitted for and against the proposal. I'd like to speak directly to the family owner operators of sportfishing, whale watching, small ferry operators. I hear you. I understand your concerns about this proposal, but there is a lot of bad, poor, and misinformation being put out amongst your groups on this technology. M&H Engineering will meet your needs and allow you to continue operating your vessel as you do today. I'll break it down simply into three Ps.

Power. Today, we have engines from 75 horsepower to 425 horsepower with much better torque curves that you're used to. We'll be working on a range of engines

from 500 to 900 horsepower next year. These engines have all got the shielding and thermal temperatures that you're used to work to with the Tier 2, Tier 3 marine engines.

Package. This is where the misinformation regarding the size and weights of the Tier 4 marine engines is. Our engines have good power-to-weight ratio that are compact, integrated, fuel efficient, and highly liable."

Response 3280: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3362: “The Opportunity. M&H Engineering decided to build a range of marine engines that would meet or exceed all present and future marine emission regulations globally. (55-317kW in phase 1 and 350-680kW phase 2). We developed a range of marine engines to meet Stage-V and Tier 4 requirements (exceeding IMO III). Through innovation and new concepts we have been able to solve the challenges that other OEM's say are not possible. The aftertreatment will not cause high temperatures in the engine room, can pass through wooden and fibreglass bulkheads safely and correctly. Designed as a re-fit engine package. Aftertreatment can be remotely mounted if required. No hot surface temperatures. Designed to operate at sea safely without compromising the vessel or handling. The Challenge. To build a marine engine with dual EU Stage-V and EPA Tier 4 certification and make it a marine engine that would be accepted worldwide. To overcome the high exhaust manifold, turbo and after treatment temperatures, to give low surface temperatures acceptable to marine applications. Deliver a compact and optimised aftertreatment package much smaller than the IMO III solutions other OEM's are offering today, so that retro-fit would be possible. To comply with all present and known future marine emission regulations in one engine range. The Solution. We have exceeded the requirements and set the new standards for marine engines on a worldwide accepted platform. We have taken technologies from a wide range of industries and mixed them into the M&H solution. We have proven, if needed, we could take the engine to its limits and/or to worst-case marine situations, and still be within all requirements. We have a worldwide telematic system so that we can proactively support these engines wherever they are. Most importantly a compact aftertreatment package that's the size of 2 x 25litre drums. We also have these engines as Hazardous Area engines for the petrochemical barges and Hazardous Applications.”

Response 3362: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3386: “Please find attached a presentation that I would like to submit and present to the Board Meeting on Thursday 24 March 2022 regarding the California Harbour Craft regulations tha[t] is being discussed. We are in support of these regulations, as are an engine manufacturer who has engines to meet these regulations.

Presentation by: Barry McCooey

EPA Certified Tier 4 Marine Engines

Reduced Emissions.

M&H Engines are certified to EU Stage-V and US Tier 4 emissions levels, they exceed IMOIII standard.

M&H Engineering engines are designed to meet or exceed all present and future marine emission regulations globally.

55-317kW in phase 1 in 2022.

350-680kW phase 2 in 2023.

For propulsion, generator and auxiliary applications. Sea water cooled, keel cooled and radiator options.

Refit or New Builds.

Designed as a re-fit engine package to replace present engine range fitted to vessels. Ideal for Commercial Passenger Fishing Vessels that are wooden or fibreglass construction. Excursions vessels where weight is critical.

Similar engine layout and configuration to existing marine engines. Easy to install with 12/24 volt options.

Front PTO options available for hydraulics or generator.

Designed to operate at sea safely without compromising the vessel or handling.

Higher torque at lower RPM, full loading at all speeds. Lower fuel consumption.

Simple and straightforward servicing requirements.

After Treatment.

Aftertreatment can be behind the engine or remotely mounted if required, or in different void space or on deck.

Packaged and protected. No hot surface temperatures.

The aftertreatment will not cause high temperatures in the engine room, can pass through wooden, fibreglass and aluminium bulkheads safely and correctly.

Integrated and compact aftertreatment package that is the size of 2 x 25litre drums on the 9 litre engine. Lighter weights than retro-fit systems.

We also have these engines as Hazardous Area engines for the petrochemical barges and Hazardous Applications.

Why M&H Engineering.

We believe that we have designed an engine package that can be fitted to all types of vessels without compromising the vessel in weight or stability.

Can be used as dry exhaust system when this suits or as a water cooled insulated exhaust replacing existing wet exhaust, with a mixer at the discharge point.

Small integrated after treatment package that is highly reliable. With an engine that has proven reliability when compared to other competitors' solutions.

Built on a time proven base engine that has good service and local support networks already established.

Engine Power Range.

M&H engines can use the full power and torque curve, allowing the engine to deliver full power at lower rpm and reducing the need for deep reduction gearboxes, thus give significant fuel cost savings. These engines are more efficient than the previous engines.

Confirmed Power Range, delivery Q3 2022.

4.5 Litre T4 / Stage-V from 55kW to 129kW @2400rpm. Open to take orders.

6.8 Litre T4 / Stage-V from 104kW to 224kW @2400rpm. Open to take orders.

9 Litre T4 / Stage-V from 250kW to 317kW @ 2200rpm. Open to take orders.

In Development 2022, to be confirmed. Expected delivery Q3 2023

14 Litre T4/Stage-V from 300kW to 510kW @ 2100rpm

18 Litre T4 / Stage-V from 513kW to 680kW @ 1900rpm*

* TBC"

Response 3386: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3411: "We have developed and designed a set of marine engineered -- engines that are certified to EU Stage 5 and U.S. Tier 4, and will also CARB's Tier 4 plus DPF regulations. Our design -- our engines are designed to meet and exceed all present and future marine emissions. We start with 55 to 317 kilowatts this year being launched in Q3 and 350 to 680 kilowatts in Q3 next year. Our engines are designed propulsion, generators, or auxiliary applications, and are cooled as normal marine engines would be. Next slide, please.

Our engines, again we designed the package to be as a replacement engine for all the Tier 2, Tier 3 engines out there being used today. They're ideal for commercial passenger fishing vessels with wooden and fiberglass construction or aluminium. We're aware of these construction. We also have these constructions in the UK and Europe. And this equipment will fit into it. We understand weight, balance, trim is critical. Again, our engines are designed to be direct replacements.

The layouts, configurations are exactly the same as what you're used to, that 12 and 24 volt options. We have front PTO options for hydraulics and generators designed to operate at sea safely without compromising vessel handling. Next slide, please.

The aftertreatment can be remotely fitted in void spaces, or on deck, or behind the engines. All our engines are packaged and protected, so there's no hot surfaces, no fire risks, things like that. The size of the aftertreatment on the 9-liter is equivalent to two 25-liter drums. We've also gotten engines designed for hazardous area applications, the petrochemical barges, and hazardous applications."

Response 3411: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

d. Zero-Emission and Advanced Technology (ZEAT)

Comment 1780.2: "We also power hybrid tugs and workboats. Depending on battery size and operational profile, you can typically reduce fuel consumption and emissions by 30-60%, in addition to reducing maintenance costs and increased safety."

Response 1780.2: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3331.2: “Zero-emission technology is available today. And the U.S. is behind Europe despite our car and truck zero emission leadership. We are working with vessel operators in California to go zero emission, including the Angel Island Ferry, which submitted their Moyer application to go zero emission on Wednesday”

Response 3331.2: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

e. DPF Technology

Comment 3036.1: “Technologies such as SCRs, DPFs, diesel oxidation catalysts (DOCs), and ammonia slip catalysts (ASCs) are commercially available today and can be found on millions of highway and off road engines since 2007. Retrofit DPFs have been installed on many thousands of in-use heavy-duty vehicles and off-road equipment in California and more broadly worldwide to provide significant reductions in diesel particulate matter (PM), as well as reductions in toxic hydrocarbon and carbon monoxide (CO) emissions from the in-use fleet.

MECA agrees with the staff report’s assessment that marine applications pose unique operating environments and challenging packaging envelopes for emission control technologies. However, proper application engineering over the past twenty years has resulted in the successful application of DOCs, DPFs, and SCR catalysts on a variety of marine engines today.

Since the mid-1990s, urea SCR technology has been successfully installed on a variety of marine applications in Europe, including auto ferries, cargo vessels, military ships, and tugboats, with hundreds installed on engines ranging from approximately 450 to over 10,000 kW. In addition, the International Maritime Organization Tier 3 requirements which came into force in 2021 have required that new engines utilize marine specific SCR installations in NOx Emission Control Areas (N-ECAs) which include the coastal waters of Europe, the United States and Canada. CARB funded a demonstration of a DPF+SCR retrofit of a tug boat that achieved over a 95% reduction in PM emissions and more than a 90% reduction in NOx from two parallel Detroit Diesel 525 hp engines. The New York Port Authority retrofitted two Staten Island Ferries with SCR that remain in operation. Globally, there is growing experience with emission control technologies installed on marine diesel engines and in particular in Europe where Euro V engine standards require DPFs on inland waterway vessels to meet strict particulate regulations.”

Response 3036.1: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3307: “My name is Tom Babineau with Rypos, an active DPF manufacturer and a supporter of these proposed amendments.

I'd like to take the time to address two dominant areas of concern expressed here today. Those are the question of whether effective technologies are available to meet the regulatory

compliance dates and the safety of DPFs in general. Relative to meeting compliance dates, Rypos is deep down the verification path with proven technology that already has successfully received more than five CARB verifications for other regulations. This DPF technology has already filled in over 10 -- excuse me, 10,000 installations worldwide and is ready for harbor craft.

Rypos is in the process of installing active DPFs on main propulsion engines and on harbor craft auxiliary engines at an extreme fraction of the cost of expressed here today.

As it relates to safety, one vessel is under --that is under retrofit today is a Coast Guard documented vessel, which means that the naval architect has submitted all design modifications to the U.S. Coast Guard for approval. These installations are moving forward and be completed by the end of this year.

I'd like to also point our first application in the marine environment was 16 years ago, where we completed 18,000 hours of combined engine operation under DPF. So in short, DPF technology is proven, ready, and operated on Navy vessels for more than nine years. Will be -- it will be verified by the required compliance dates."

Response 3307: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3430: "Thank you. My name is Misagh Tabrizi, representing Nett Technology, a Canadian manufacturer of mature emission technologies, such as DPFs and SCRs. The Board might be interested in hearing about our recent successful CHC retrofit demonstration project and how we worked with the U.S. Coast Guard on the design and safety approval processes.

Currently, we are pursuing CARB verification for this mature retrofit technology for CHC market aiming to meet the proposed and future emission reductions of oxides of nitrogen and diesel particular matter.

In short, our coordinated efforts with Coast Guard resulted in our retrofit technology to meet applicable codes on construction material both in terms of the thickness and choice of material meeting applicable electrical wiring codes, and meeting the skin surface temperature requirement; additionally, the design products with net weight increases of less than five percent; a modular compact design with adequate thermo management, available for all CHC applications ranging from low to high duty cycles; comparable back pressure on engines pre-, post-retrofit; and a fully automated system with the least amount of operator engagement.

Separately in terms of the market readiness, I'm happy to report that Nett Technologies has internal plans for direct sales to end-users and fleets, to distribution channels, and licensed in the technology to be able to reduce the time it takes to provide this mature technology to California, after granting the CARB verification. Thank you."

Response 3430: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

Comment 3438: "I want to thank staff and Board members for this opportunity to provide support for this regulation. My name is Tom Babineau. I represent Rypos and active DPF manufacturer. Since 1996, Rypos has produced tens of thousands of active DPFs that have operated for more than 50 million hours to date without a safety incident.

Like many of the previous regulatory efforts, regulations and technologies are necessarily advancing in parallel, so there's a natural tendency for us all to ask are these technologies ready? Have they been tested? Will they work?

I've attended all the public workshops and this is a constant theme. Given that DPF's effectiveness to reduce PM is proven, I'd like to spend my time today on readiness and durability, which by extension, speaks to safety.

DPFs, if sized properly and used on compliant engines, have accommodated all forms of engine load cycles for years. They're successful in the ports and RTGs offloading container ships and are successful on TRUs that deliver food across the nation. They've been around for years. They've been tested over time and they're proven to uncover -- the ARB process of verification has been tested over time and has proven to uncover and weed out problems.

In order to find the uncharted problems, however, testing is not only required by ARB through the verification process, but we do our own of course. So we don't need the headaches that threaten our very existence.

So in 2006, Rypos retrofitted a U.S. Navy barge, which operated for over 19,000 total combined hours without incident. In 2014, the U.S. Office of Naval Research in partnership with UC Riverside independently tested these DPFs and found them to be operating as designed. Again, zero operational safety issues have occurred.

We presently have two DPFs – "

Response 3438: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

f. Renewable Diesel

Comment 3036.5: "The most effective emission controls utilize the three primary elements of the system including the engine, aftertreatment and fuels. MECA also supports the staff proposal that will require harbor craft diesel engines to be fueled with R100 renewable diesel that has been shown to reduce PM and NOx emissions as well as combat climate change."

Response 3036.5: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

g. Enforcement

Comment 3106.2: "Finally, the District and CARB are currently developing a Memorandum of Understanding (MOU) to provide the District with authority to enforce the CHC regulations. This initiative aligns with the strategies established under the Portside CERP as the CHC regulation is designed to reduce DPM and nitrogen oxide emissions generated

from CHC. The proposed MOU can increase compliance rates by expanding the District's presence in the field and promoting local outreach efforts."

Response 3106.2: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comment.

h. Funding

Comment 3106.1: "Over the past twelve years, the District has provided over \$14 million in incentive funding to repower more than 190 marine engines to achieve early emission reductions ahead of existing regulatory requirements through its implementation of existing incentive programs such as Carl Moyer and the Community Air Protection Program. However, given the timelines and requirements of these proposed amendments, these incentive opportunities will be very limited in the future, and as such, the financial costs of compliance with this regulation will likely fall to the CHC owners. While it will be difficult for the District to provide substantial assistance to local harbor craft owners or facility owners through the existing incentive programs, the District plans to continue to work with vessel owners to provide incentives for early or extra emission reductions where feasible."

Response 3106.1: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comments. Although the 2022 Amendments establish new emissions requirements for CHC, the amendments do not propose any changes to the Carl Moyer Program guidelines. CARB staff will continue to coordinate with the Carl Moyer Program staff and communicate funding opportunities to stakeholders. See Response 1094.3 et al. regarding more information on funding.

Comment 3331.3: "However, we also understand and empathize with those who oppose this regulation and are concerned about their livelihood. This is why I spoke on Agenda Item number 4 about a dedicated marine fund, because funding for zero-emission marine technology projects and equity for those of lower economic means are needed. It's very simple, make it more economical for marine operators to go zero emission than to do a diesel repower. We don't understand the focus for 99.5 percent of marine vessels by CARB regulations on heavy, unsafe, and hot emission controls on diesel engines that do nothing to reduce greenhouse gas emissions. We ask CARB to make zero emission a better option than a diesel repower, by revising Moyer funding guidelines so that it's easier for marine operators to go zero-emission."

Response 3331.3: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comments. Although the 2022 Amendments establish new emissions requirements for CHC, the amendments do not propose any changes to the Carl Moyer Program guidelines. CARB staff will continue to coordinate with the Carl Moyer Program staff and communicate funding opportunities to stakeholders. See Response 1094.1 et al. and 1094.3 et al.

i. Comments in Support of 15-Day Changes

(3393) (3394) (3401) (3404) (3405) (3408) (3409) (3415) (3416) (3431) (3432) (3444) (3449)

Summary of Comment 3393 et al.: These comments expressed support for the proposed 15-day changes presented at the March 24, 2022 Board Hearing.

Response 3393 et al.: Thank you for your comments and support. CARB staff made no changes to the Regulation Order based on the received comments. CARB staff appreciates the support for the proposed modifications which staff presented to the Board during the March 24 Board Hearing, and that the Board included in Resolution 22-6, which was approved at the March 24th Board Hearing.

2. Comments in Support of More Stringency

a. 100 Percent Zero-Emission

(1094.1) (1095.1) (1167.1) (1168.1) (1172.1) (1230) (1649) (1651) (1655) (1657) (1659.1) (1666) (1680) (1690.1) (1713.1) (1780.4) (2359.2) (2372.1) (2460.2) (2465.1) (2599.1) (2610.1) (2615.1) (2620.1) (2621.2) (2622.1) (2625) (2626.1) (2630.1) (2636.1) (2923.1) (3004.1) (3040.1) (3103) (3113.1) (3116) (3133.1) (3143.1) (3155) (3156.1) (3185.2) (3189.1) (3193) (3248) (3258.1) (3270.2) (3276.1) (3287) (3304.2) (3310) (3319) (3322.2) (3324.2) (3340) (3341.1) (3346) (3353.1) (3366) (3368.1) (3370.1) (3380.2) (3384) (3398)

Summary of Comment 1094.1 et al.: Many comments urged CARB staff and board members to push for a stronger, more stringent rule by requiring a 100 percent zero -emission transition for the majority of harbor craft by 2035, including tugboats, ferries, barges, and dredges. These comments indicated that the technology exists to transition to 100 percent clean fleets, and that there are over 300 operating battery-electric ships worldwide, and more to come. Furthermore, commenters recommended this requirement as a path to supporting Governor Newsom’s Executive Order N-79-20, which set a goal to “transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.” Additionally, commenters suggested that requiring the development of charging and fueling infrastructure and subsidizing the costs of green hydrogen and renewable electricity will greatly increase the adoption of zero-emission vessel technologies.

Response 1094.1 et al.: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff appreciates the support for the 2022 Amendments’ goals of improving public health and air quality benefits and reducing emissions from harbor craft.

CARB staff believes that the 2022 Amendments already require the most stringent standards for harbor craft that is technically feasible, including zero-emission requirements for harbor craft where feasible. CARB staff committed at the March 24, 2022, Board Hearing to complete a biennial technology and implementation review to track the advancement of cleaner combustion and zero-emission technology in the marine sector, which could inform future regulatory action to require more zero-emission standards as it becomes feasible in more areas of the marine sector. This technology review would involve establishing a technical working group with members from industry. CARB staff also committed to explore opportunities for CHC zero-emission contingency measures to include in the State Implementation Plan (SIP). Additionally, staff will conduct a Midterm Review in 2028 to

evaluate whether zero-emission should be considered as the final compliance step for CPFVs utilizing compliance extensions.

Furthermore, the 2022 Amendments include a number of flexible pathways to incentivize the voluntary adoption of zero-emission technology by harbor craft operators, such as the ZEAT credits and Alternative Control of Emissions (ACE) plan. See subsection (e)(11) and subsection (f) of the Regulation Order for more information on ZEAT credits and ACE plans, respectively.

Please also see Master Response 5 in the Response to Comments on the Draft EA.

Comment 3171: “Due to the cumulative and disproportionate impacts on already overburdened communities living near the Port of Stockton (POS) in San Joaquin County and port communities across California, we urge the California Air Resources Board (CARB) to strengthen the Commercial Harbor Craft rule and expedite the transition to zero emissions for all commercial harbor crafts. Tugboats, also known as towing vessels, are currently the most common vessel type at the Port of Stockton, and are one of the largest emitting categories of commercial harbor craft for fine particulate matter (PM 2.5). It is essential to improve health and quality of life for portside communities that CARB require all harbor crafts, including tugboats, to be zero emissions as expeditiously as possible.

The Port of Stockton is the 4th largest port in California, and is located in census tract 6077000801. According to CalEnviroScreen 4.0, the POS ranks in the 99th percentile for pollution burden, with surrounding census tracts falling between 96th to 100th percentiles. Diesel pollution from sources related to the POS, numerous stationary sources, as well as major transportation corridors such as Interstate 5 and Highway 4 significantly impact surrounding neighborhoods. Idling ships along with the associated railroads, trucking facilities, warehouses and other freight and goods movement infrastructure concentrate deadly diesel particle pollution in these neighborhoods. Chronic exposure is associated with decreased lung function, exacerbated asthma impacts, and increased cancer risks due to the different substances contained within diesel emissions.

CARB staff has stated that concentrations of diesel particle pollution can reach communities up to an estimated 50-mile radius inland. With the proposed expansion of the Port of Stockton, community health impacts will likely worsen from the additional emissions from commercial harbor crafts and other sources. CARB expressed concern regarding the POS expansion and “the Project’s potential public health impacts, the lack of mitigation measures presented in the DEIR, the omission of statutory considerations that address the disproportionate impacts of air pollution on disadvantaged communities, and the absence of information related to public outreach.”

Eliminating emissions from harbor crafts, especially tugboats, will benefit the health and quality of life of people living near the POS. As it stands, CARB’s current draft harbor craft rule misses the opportunity to fully embrace this technology transition and provide much-needed emissions reductions. CARB must maintain its commitment to disadvantaged communities like south Stockton to reduce cumulative impacts by expediting the transition to zero-emissions technologies for commercial harbor crafts. This step is critical for protecting

the health of Valley residents living near the Port of Stockton, and for portside communities across the state.”

Response 3171: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.1 et al. and Master Response 5 in the Response to Comments on the Draft EA.

The 2022 Amendments are consistent with CARB’s environmental justice goal of reducing exposure to air pollutants and reducing adverse health impacts from toxic air contaminants (TACs) in all communities, especially those historically overburdened by air pollution sources. The 2022 Amendments expand in-use requirements to additional vessel categories, implement more stringent requirements for new and in-use vessels, and require the adoption of ZEAT where feasible. This ensures that air pollutants and associated health risks are reduced above and beyond the goals of the Current Regulation. This contributes to meeting community health goals set forth in Assembly Bill (AB) 617.

To further reduce emissions in disadvantaged communities (DAC), the 2022 Amendments would require more stringency for low-use compliance in areas that qualify as a DAC. The low-use compliance thresholds in DACs would be half that in other areas of the State. The low-use thresholds for each engine tier would apply to all vessels, regardless of category. The 2022 Amendments would also provide more stringency for the feasibility extension available to operators that operate Tier 4 engines less than 2,600 hours per year. If operating in a DAC, this threshold would be halved to 1,300 hours per year. To ensure that DACs would not experience a higher burden than other communities, the ZEAT credit offered through the 2022 Amendments may not be applied to a vessel with a homebase (a facility where a vessel is anchored or docked the majority of the time within a calendar year) in a DAC, unless the ZEAT vessel is also deployed in a DAC. CARB staff is also proposing an ACE option that would allow owners and operators to comply with the 2022 Amendments by implementing alternative emission control strategies that achieve equivalent or additional emission reductions as direct compliance. An ACE application would be required to demonstrate that DACs would not experience a higher burden than other communities as a result of implementing an ACE.

See Response to Comment 3171-1 in the Response to Comments on the Draft EA.

Comment 3367: “ABB encourages the California Air Resources Board (CARB) to set an ambitious, long-term statewide plan to achieve zero emissions for vessels, as well as support the growth of the sustainable maritime industry. Specifically, we urge CARB to require 100% zero-emissions deadline for all vessel segments of the Commercial Harbor Craft Rule by 2035.

With a history of innovation spanning more than 130 years, ABB has been an electrification leader for over a century. With about 147,000 employees across the globe and 24,000 here in the US, we are a market leader in power grids, advanced manufacturing technology, and electric transportation. This includes electric vehicle charging infrastructure as well as marine and port electrification solutions.

As a company that is set to invest around \$23 billion in innovation between the signing of the Paris Agreement and 2030, ABB urges California to adopt sound climate policies to encourage innovation and create secure investment conditions. ABB's commitment to combatting climate change includes limiting the environmental impact of its own operations, with the target to reduce its GHG emissions by 40 percent by 2020 from a 2013 baseline.

Sustainable transportation has a crucial role in the fight against climate change, with shipping accounting for 2 to 3 percent of the world's total greenhouse gas emissions. The marine industry is in the midst of a transition towards low and zero emissions technologies. Electric, digital and connected solutions are already transforming today's shipping, and there will be a variety of solutions to suit different vessel types and operational profiles for reducing marine emissions.

The proposed Commercial Harbor Craft rule as written is not ambitious enough. The rule does not reduce greenhouse gas emissions and risks creating a stranded asset scenario for harbor craft owners who may pay to retrofit to Tier 3 and 4 engines only to be forced to make a full zero-emission transition in quickly proceeding years later. ABB's proven solutions for sustainable marine transportation are being used around the world.

Road and Passenger Ferries

Ferries have become one of the pioneering vessel types for zero-emission battery deployment because they combine generally shorter routes with regular port visits. The shorter routes allow installation of battery packs that can fully power the vessels on their journeys while the predictable routes and turnaround times enable efficient deployment of shoreside charging infrastructure.

From small to large, most ferry boats and routes can be electrified. In 2018, two ForSea Ferries, operating between Denmark and Sweden, became the largest battery powered ferries, following an ABB-led conversion. In 2020, the first all-electric vessels ever built in the US – the Niagara Falls tour operator Maid of the Mist tour boats started operation, powered by ABB's zero-emission technology.

Tugs

Like ferries, tugboats operate on short routes and typically return to the same port every evening. However, unlike ferries, they have significant idling time and higher power demands. Zero emissions solution for harbor tugs include battery-electric or fuel cell-electric, propulsion motor to propeller. Despite higher upfront capital costs, the lower operating costs of an electric propulsion system can save the ship owner operator over \$6m over the life of the vessel.

ABB will deliver an integrated electric propulsion system and advanced vessel control technology for Crowley's pioneering eWolf tug, built for sustainable and safe operations at the Port of San Diego. The solution will include a six-megawatt-hour energy storage system (ESS), allowing Crowley's eWolf tug to achieve 70 short-tons of bollard pull emissions-free. The battery allows the tug to complete a full day of typical work before there is a need to charge. Achieving lower operational costs on a through-life basis than an equivalent vessel

running a conventional engine, the all-electric propulsion solution holds the potential to eliminate the equivalent of over 100 cars worth of CO2 pollution every year.

While zero emission boats tend to have higher capital costs, operational costs are much lower than diesel powered ships, making them more cost-effective over the lifetime of the vessel. Vessels with electric powertrains and direct current (DC) electrical systems typically cost less to operate over their lifetime due to higher energy efficiency, lower maintenance, and reduced fuel costs. However, their upfront capital costs tend to be higher. This challenge is similar to other recent energy technology breakthroughs, like wind and solar power and electric vehicles. However, through a myriad of research, development, and deployment policies and incentives, those upfront costs have come down considerably and have reached or are approaching cost parity. With appropriate support, the same will happen with zero emission marine technologies.

Below is an example for an existing ferry opportunity where the battery electric option is more expensive up front, but because it costs less to operate, the ship owner or operator ends up saving \$800,000 over the life the vessel.

[See Appendix C for Figure provided in Comment #3367]

The world is undergoing a period of significant change unlike anything in human history. All of us must work together to reduce fossil fuel emissions. Policies should focus on setting sustainability targets for shipping, allowing the industry to assemble the best technologies and solutions for enabling emission reduction, and provide support to the marine industry as it meets those targets. For the marine sector, a strong but achievable standard would be that all harbor craft operating in the state (e.g. ferries, tugs) must be zero emission, for example phase the requirement in for all new builds that go under contract on or after 1/1/2022, and all operating vessels by 2035 to allow for repowerings and fleet planning.”

Response 3367: Thank you for your comments. No changes were made to the Regulation Order in response to this comment. CARB staff appreciates ABB’s input on the 2022 Amendments and remain open to further conversations with ABB and any other stakeholders regarding developing opportunities to transition additional in-use CHC operating in RCW to zero-emission technologies. See Response 1094.1 et al.

b. Revisit Rule/Technology Review

(1094.2) (1095.2) (1167.2) (1168.2) (1172.2) (1659.2) (1690.2) (1713.2) (2359.3) (2372.2)
(2460.3) (2465.2) (2610.2) (2615.2) (2620.2) (2621.3) (2622.2) (2626.2) (2630.2) (2636.2)
(3004.2) (3040.2) (3113.2) (3133.2) (3143.2) (3156.2) (3185.3) (3189.2) (3258.2) (3270.1)
(3275.2) (3276.3) (3291.2) (3322.3) (3353.2) (3368.2) (3370.2) (3380.3)

Summary of Comment 1094.2 et al.: Many comments requested that CARB staff perform annual technology reviews, to track the advancement of zero-emission technologies, to help achieve 100 percent transition to zero-emissions for off-road sources, supporting Executive Order N-79-20. Commenters also requested the addition of language to allow the Board to revisit the rule as the zero-emission marine market evolves to ensure that regulation achieves maximum emissions reductions. Furthermore, commenters requested a

commitment to achieving additional emissions reductions be included in the 2022 SIP, and at a minimum, requested that CARB conduct an interim evaluation of the 2022 Amendments before 2024 to evaluate progress and the state of technology.

Response 1094.2 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.1 for information on the biennial technology review and midterm review.

Please also see Master Response 5 in the Response to Comments on the Draft EA.

c. Increase funding

(1094.3) (1095.3) (1167.3) (1168.3) (1172.3) (1659.3) (1690.3) (1713.3) (1780.5) (2359.4)
(2372.3) (2460.4) (2465.3) (2620.3) (2621.4) (2622.3) (2626.3) (2630.3) (2636.3) (3004.3)
(3040.3) (3113.3) (3143.3) (3156.3) (3189.3) (3258.3) (3276.2) (3291.3) (3304.3) (3337.2)
(3341.2) (3368.3) (3370.3)

Summary of Comment 1094.3 et al.: Many comments requested that the State increase funding for zero-emission harbor craft pilot demonstrations and DPF retrofits to spur innovation for marine technology.

Response 1094.3 et al.: CARB staff made no changes to the Regulation Order based on the received comments. Although the 2022 Amendments establish new emissions requirements for CHC, the amendments do not propose any changes to any incentive funding or demonstration project program guidelines. CARB staff will continue to coordinate with the funding programs and communicate funding opportunities to stakeholders.

CARB staff has compiled and posted on the CHC Program website a list of funding programs applicable to harbor craft and has communicated these opportunities to stakeholders through fact sheets, workshops, and individual meetings and emails. CARB staff recognizes that there may not be enough incentive funding available to cover the cost of compliance for every harbor craft operator. CARB staff will continue to have expanded dialog with funding program partners to identify, communicate, and maximize the use of funding opportunities.

Please also see Master Response 5 in the Response to Comments on the Draft EA.

Comment 2923.2: "I am specifically submitting this letter in support of funding for UC San Diego's Scripps Institution of Oceanography (Scripps) hydrogen-hybrid coastal research vessel project. This vessel will reduce criteria pollutants and greenhouse gas emissions, while demonstrating the viability of clean, nonpolluting zero-emission shipboard power systems to the maritime industry. The vessel will feature an innovative hybrid propulsion system that will use hydrogen fuel cells to enable true zero-emission operations for 75 percent of the ship's expeditions, supplemented by a conventional diesel-electric power plant when additional range is required offshore.

Given the climate emergency that we are facing, we need bold climate leadership -- and bold transformation of maritime power systems that Scripps is working to demonstrate.

I am also advocating for adoption of green hydrogen (hydrogen derived from low-carbon sources) for maritime hydrogen fuel systems. Institutions like Scripps need to defray the cost of green hydrogen used on ships to effectively compete with lower-cost diesel fuel. Access to affordable green hydrogen will incentivize and accelerate the expanded use of hydrogen fuel technology within the maritime industry, supporting federal and state carbon reduction goals and enabling a zero-carbon well-to-wake energy pathway.”

Response 2923.2: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1094.3 et al. and Response 3158.1 et al.

Demonstration projects may apply for funding through CARB programs but will compete with other projects for funds. Many programs will award partial funding for projects like these and may not be able to cover the entire cost of the project.

The 2022 Amendments do not require the use of green hydrogen but do allow for the use of alternative fuels as part of an ACE plan.

d. Limit Compliance Extensions

(2610.3) (3133.3)

Summary of Comment 2610.3 et al.: These comments urged CARB to significantly limit compliance extensions to ensure relief from pollution impacts occur in the near term.

Response 2610.3 et al.: CARB staff made no changes to the Regulation Order based on the received comment. CARB staff believes the compliance extensions in the 2022 Amendments provide necessary flexibility to operators that do not have technical or financial feasibility to meet the required performance standard. The emissions calculations that support the basis for this rulemaking included assumptions that some operators would use compliance extensions and exceptions.

Please also see Response to Comment 2610-1 and Master Response 5 in the Response to Comments on the Draft EA.

3. Comments in Opposition of the 2022 Amendments

a. The Global Situation that Began in 2020

(1.2) (2.3) (28.2) (49.1) (56.1) (63.2) (95) (96.2) (222) (230.3) (410.2) (436) (550) (572) (620) (696.5) (890.1) (974.1) (1153.2) (1419) (1446.2) (1499.7) (1551.2) (1555.3) (1562) (1643.2) (1647.4) (1681.1) (1692) (1702.4) (1787.8) (1788.1) (1860) (1982.2) (1996.1) (2088.1) (2225.3) (2250.1) (2317) (2370.1) (2498.1) (2525.8) (2567.3) (2594.4) (2841.1) (2944.3) (3023.6) (3102.1) (3160.1) (3195.48) (3198) (3264.1)

Summary of Comment 1.2 et al.: CARB received many comments with general concerns over the effect of the COVID-19 pandemic. Commenters indicated that it has threatened to shut down businesses, and surviving businesses are still trying to recover. Commenters affiliated with sportfishing operators indicated that captains are running limited loads on charters due to COVID safety protocols. Sportfishing and whale watching operators indicated

that the 2022 Amendments will undermine the Governor's efforts to restore half of the 1.2 million hospitality and tourism related jobs lost during the pandemic, and that sportfishing is an outdoor activity that is safe to enjoy during COVID. Commenters also stated that economic forecasts predict it will take years for the tourism and hospitality industry to recover, and extensions or grants should be given to compensate for the effects of the pandemic on passenger-carrying vessels.

Response 1.2 et al.: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff recognizes that the pandemic may have affected businesses negatively, in addition to its negative effects on public health. The 2022 Amendments provide necessary near-term emissions reductions to protect communities near harbor craft activity. To provide some flexibility while maintaining the more stringent emissions standards, the 2022 Amendments include an additional 2-year feasibility extension renewal (Extension E3) for passenger-carrying vessels such as commercial passenger fishing vessels (CPFV), ferries, and excursion vessels, that have compliance dates in 2024 or earlier. This would give operators a maximum of 8 years of feasibility extensions, instead of six years for some other vessel types, and could potentially extend compliance deadlines out to 2034, allowing more time for businesses to recover to pre-pandemic operation. Also, as directed by the Board in Resolution 22-6, CARB staff proposed a 15-Day modification to the 2022 Amendments that would establish a one-time, 10-year extension for CPFVs that meet the Tier 3 standard by the end of 2024.

Comment 724.4: "Likewise, Excursion Vessels are equally vital to the visitor serving community and have faced huge business and economic challenges resulting from the Covid pandemic. Any new regulations, or further implementation of additional regulations and limitations, such as lowering the low use annual engine hour maximums and implementation of opacity testing should be avoided, or at the very least delayed, for a number of years so that this vital industry can recover."

Response 724.4: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1.2 et al.

Furthermore, in the 2022 Amendments, the annual hour thresholds for the low-use exemption are only lowered for unregulated pre-Tier 1 engines, and engines on vessels operating in DACs.

Comment 3195.60: "On behalf of CPFV's throughout the state of California, SAC and GGFA recommend the following modifications to the current CHC amendment: [...]"

That Fee Schedules be removed from the rule as the sector is financially challenged and will be for many years due to the pandemic."

Response 3195.60: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1.2 et al.

Compliance fees paid by operators will fund the positions necessary to implement and enforce the 2022 Amendments beginning January 1, 2023.

b. Public Process

Comment 696.8: “-These regulations were drafted behind closed doors during the height of the COVID pandemic... with little opportunity for public comment. Many vessel owners are only now learning that their days at sea may well be coming to an end and their livelihoods could soon be lost forever.”

Response 696.8: CARB staff conducted extensive communication with stakeholders during the public process, as described in Chapter XII of the Staff Report. Throughout the rulemaking process with regards to the CPFV sector, CARB staff engaged in direct outreach with regulated stakeholders, emailed list serve notices, and communicated with stakeholder trade organizations including the Sportfishing Association of California (SAC), the Golden Gate Fishermen’s Association (GGFA), and California Department of Fish and Wildlife (CDFW). CARB staff conducted numerous meetings with United States Coast Guard (USCG) Officers at the District 11 Headquarters in Alameda and at the Marine Safety Center in Washington D.C. during regulatory development. CARB staff received over 3000 public comments from stakeholders and community members and continued to encourage stakeholders to participate in the public process through verbal testimony at Board Hearings and written public comments. CARB staff will remain available for meetings with stakeholders from every CHC sector and will continue outreach to both CHC operators and facility operators as part of implementation and enforcement efforts.

See Response 1132.1 et al. for information on administrative procedures, and Response 1.7 et al. for information on the 15-Day modifications made to the 2022 Amendments.

Comment 1132.1 & 1664.1: “I am writing to request a 90-day extension of the November 15, 2021, public comment deadline for the California Air Resources Board’s (CARB) Proposed Amendments to the Commercial Harbor Craft Regulation. We also request a 90-day extension of the CARB public hearing currently scheduled for November 19, 2021.

CARB has provided only 45 days for stakeholders to review and develop comments on the rulemaking package, which contains over 1,500 pages of material. Assuming it takes an average person approximately three hours to read 100 pages, it would take about 45 hours of dedicated reading time to read the entire rulemaking package. Significant additional time would be required to process the contents of this dense rulemaking and to provide CARB with thoughtful comments.

Careful analysis and thoughtful comments are essential because the rulemaking package includes new material and is unprecedented in its scope and impact. It will affect over 3,000 vessels operating in California waters and cost California’s harbor craft industry approximately \$2 billion, according to CARB’s estimate. Industry cost estimates are considerably higher. Additional time is needed because the rulemaking package is large and the scope of impact to California’s harbor craft community is extraordinary.

This is not the first time that stakeholders have requested extensions or pauses to this regulatory process. Members of the California legislature, along with dozens of industry stakeholders, have requested extensions almost from the inception of the preliminary rulemaking process, which also happened to coincide with the onset of the COVID-19

pandemic. CARB has not been responsive to these requests, providing insufficient extensions of 30 days for the comment period on the preliminary March 2020 draft amendments and a 7-day extension from November 8 to November 15, 2021, for the current rulemaking.”

Response 1132.1 et al.: In accordance with the Administrative Procedure Act, CARB accepted public comments on the rulemaking package for at least 45 days. The 45-Day comment period opened on September 21, 2021, and on October 1, 2021 was further extended by 7 days to November 15, 2021 due to the posting of an Errata document. Additionally, the docket was re-opened during the two Board Hearings on November 19, 2021, and March 24, 2022, which provided additional opportunities for stakeholders to formally comment on the 45-Day package.

In addition to the formal comment periods, CARB staff provided ample opportunity for stakeholders to review draft proposed requirements and related documentation ahead of the formal rulemaking proceedings. CARB staff posted draft versions of the draft regulatory language and draft cost analysis on its website in September 2020, one full year ahead of the formal 45-Day Notice, and conducted numerous meetings, phone calls, and email exchanges with stakeholders to discuss and refine the proposal prior to the 45-Day Notice as described in the Staff Report.

Comment 1132.2: “Although CARB has incorporated very little of AWO’s substantive feedback from earlier iterations of this draft rule into the current final version, we are nonetheless optimistic that careful deliberation and genuine dialogue between CARB and its regulated community may help to improve the rule, if there is sufficient time to do so. Therefore, AWO hereby requests a 90-day extension to develop important feedback on this proposal that likely represents the most dramatic and costly regulation in the history of domestic commercial maritime operations in California. Allowing AWO and other heavily impacted stakeholders to submit public comments and testimony with greater clarity and comprehensiveness will provide CARB with the additional information needed to develop a regulation that improves air quality for the citizens of California in a meaningful and reasonable manner.”

Response 1132.2: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1132.1 et al.

Comment 1614: “I am writing to request a 90-day extension of the November 15, 2021, public comment deadline for the California Air Resources Board's (CARB) Proposed Amendments to the Commercial Harbor Craft Regulation. We also request a 90-day extension of the CARB public hearing currently scheduled for November 19, 2021.

CARB has provided only 45 days for stakeholders to review and develop comments on the rulemaking package, which contains over 1,500 pages of material. RE. Staite Engineering, Inc. is a small, family owned business. We do not have our own in-house attorneys and experts that review material for us and provide guidance, we do it ourselves. As you can imagine, with a company with less than 50 employees there are many hats that get worn by a few people. To make sure that we understand the full impact to our business, we have a team of employees that are reviewing the proposed amendment and proposal materials from

their area of expertise, which pulls them away from other projects and priorities, at an ultimate cost to the company.

R. E. Staite has been very generous with CARB staff over the past year to provide data and business information about our company. This data has been incorporated into the proposed documents. While we are experts in our field, we are not air quality analysts, and making sure that our information is represented accurately is very important to us and to other stakeholders. We need time to review and process the information in order to provide CARB with honest and accurate feedback.

We are concerned about the outreach efforts by CARB to inform stakeholders of the proposed changes. We have been following the proposed regulations since their publication in March 2020, but not because we were notified (at the time we were not on the CARB Listserve). We ran across the information when we were looking at the CARB website for possible grant opportunities. The marine construction industry is a fairly small niche. We have reached out in the last few months to let our colleagues know of the proposed changes. There are several large companies that are aware of the proposed changes, but we found that many others have been unaware, especially the smaller organizations and ancillary industries that support the marine construction industry, such as hydrographic surveyors, divers and environmental monitors. These companies may only have one or two vessels that qualify as Commercial Harbor Craft that they use for construction support activities, but they will be greatly impacted. R.E. Staite has been processing this information for over a year, imagine how overwhelming this task would be if you only had 45 days to figure it all out?

R.E. Staite Engineering, Inc. has been in business since 1938. The proposed amendments will have a profound impact on our business, **and may ultimately put us out of business**, should this move forward. Allowing R.E. Staite Engineering, Inc. and other heavily impacted stakeholders to submit public comments and testimony with greater clarity and comprehensiveness will provide CARB with the additional information needed to develop a regulation that improves air quality for the citizens of California in a meaningful and reasonable manner.”

Response 1614: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1132.1 et al.

Comment 1664.2: “We are optimistic that careful deliberation and genuine dialogue between CARB and its regulated community may help to improve the rule, if there is sufficient time to do so. Therefore, Centerline Logistics hereby requests a 90-day extension to develop important feedback on this proposal that likely represents the most dramatic and costly regulation in the history of domestic commercial maritime operations in California. Allowing Centerline Logistics and other heavily impacted stakeholders to submit public comments and testimony with greater clarity and comprehensiveness will provide CARB with the additional information needed to develop a regulation that improves air quality for the citizens of California in a meaningful and reasonable manner.”

Response 1664.2: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1132.1 et al.

Comment 2228.7: “A Failed Process

The regulations were drafted during the height of the global pandemic without proper in person stakeholder outreach and insufficient consultation with experts in boat construction, and maritime and fishing practices. Moreover, when CARB released its amended regulations on September 21st, notices were not mailed to boat owners notifying them of the regulations, public comment period and public hearing. Given that CARB has an inventory of all boat engines and commercial fishing licenses held with the California Department of Fish and Wildlife, this could have been easily achieved. Afterall, there are only 174 commercial passenger boats in California, or less than 10 percent of all harbor craft. It is conceivable that many, if not most, boat owners remain unaware of the proposed regulations and specifically, that their boats could be removed from service.

We remain concerned that as part of the drafting of the regulations and subsequently, during the public comment period, CARB did not consult with the California Department of Fish and Wildlife, the California Fish and Game Commission, the Department of Boating and Waterways, the Coastal Commission, tourism authorities, chambers of commerce, harbor and marina organizations, port authorities, the United States Coast Guard or local government agencies up and down the California coast.”

Response 2228.7: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8.

Comment 2602.1: “As an initial matter, it is unclear whether CARB has the authority to regulate marine vessels as opposed to marine engines used in vessels. CARB needs to clarify the extent of its regulatory authority, and the critical role that the United States Coast Guard (USCG) will play in implementing the proposed regulatory amendments.”

Response 2602.1: No change was made to the proposed regulation in response to this comment. CARB is authorized by both state and federal law to regulate the emissions of air pollutants generated from marine vessels, and the scope of that authority is not limited to only the engines used in marine vessels.

As CARB explained in the Staff Report for this rulemaking action:

CARB has been granted broad and extensive authority under the Health and Safety Code (HSC) to adopt the 2022 Amendments. CARB is authorized to adopt standards, rules and regulations needed to properly execute the powers and duties granted to and imposed on CARB by law (HSC § 39600 and 39601). HSC § 43013 and 43018 broadly authorize and require CARB to achieve the maximum feasible and cost-effective emission reductions from new and in-use non-vehicular and mobile sources, including, to the extent permitted by federal law, the adoption of regulations for *marine vessels*, (HSC § 43013(b)). HSC § 43013(h) directs CARB to expeditiously reduce NOx emissions from diesel *marine vessels* and other vehicular and mobile sources “which significantly contribute to air pollution problems.” HSC § 43108(a) directs CARB to achieve “the maximum degree of emission reduction possible” from both vehicular and other mobile sources.

CARB is further mandated to reduce emissions of TACs under California's air toxics laws. HSC § 39666 directs CARB to adopt Air Toxic Control Measures (ATCM) to "reduce emissions of toxic air contaminants (TAC) from nonvehicular sources," such as the DPM emitted from CHC.

CARB is also charged by HSC § 38500 et seq. to monitor and regulate sources of GHG emissions and is directed by HSC § 38560 to adopt regulations to "achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources, subject to the criteria and schedules set forth in this part."

HSC § 39730 directs CARB to develop a comprehensive strategy to reduce emissions of short-lived climate pollutants (SLCP), such as black carbon (BC) emitted by CHC in the state, and HSC § 39730.5 directs CARB to begin implementing that strategy no later than January 1, 2018.

Staff Report, I-1 to I-3 (emphasis added).

These statutory provisions do not restrict CARB's authority to regulate emissions of air pollutants from marine vessels. HSC §§ 43013(b) and 43013(h) expressly authorize CARB to adopt standards and regulations applicable to marine vessels, defined as "any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation." HSC § 39037.1. Moreover, the other cited statutory provisions broadly authorize and mandate CARB to achieve emissions reductions, including reductions of emissions of TACs and GHGs, from "nonvehicular sources," which are broadly defined as "all sources of air contaminants, including the loading of fuels into vehicles, except vehicular sources."⁸ HSC § 39043.

The Federal Clean Air Act (CAA) (42 USC § 7401-7671q) also does not restrict CARB's authority to regulate emissions from marine vessels. Although CAA section 209(e)(1) (42 U.S.C. § 7543(e)(1)) expressly preempts all states or their political subdivisions from adopting or enforcing emissions standards or other emission-related requirements for certain categories of new nonroad engines or nonroad vehicles - new engines used in farm and construction equipment smaller than 175 horsepower (hp), new locomotives, or engines used in new locomotives, CAA section 209(e)(2)(A) expressly provides that California can adopt and enforce emissions standards for any other categories of new or in-use nonroad vehicles or nonroad engines, such as marine vessels, provided California obtains an authorization from U.S. EPA pursuant to section 209(e)(2).⁹ CAA section 209(e); therefore, makes clear that California's authority to regulate emissions of air contaminants extends to both marine vessels as well as to the engines powering such marine vessels.

⁸ Vehicular sources are sources of air contaminants emitted from motor vehicles. HSC § 39060.

⁹ Marine vessels fall within the CAA's definition of a nonroad vehicle. "[A] vehicle that is powered by a nonroad engine and that is not a motor vehicle (a self-propelled vehicle designed for transporting persons or property on a street or highway (CAA §216(2)). See also *Engine Manufacturer's Ass'n v U.S. E.P.A.*, 88 F.3d 1075, 1101 (D.C. Cir. 1996) (Tatel, dissenting) (discussing air boats used in the Florida Everglades as an example of nonroad equipment).

USCG Role in Implementing the 2022 Amendments

The 2022 Amendments clearly state, in 17 CCR § 93118.5(b), that “nothing in this section shall be construed to amend, repeal, modify, or change in any way any other applicable State, USCG, or other federal requirements. Any person subject to this section shall be responsible for ensuring compliance with both USCG regulations and the requirements of this section and any other applicable State and federal requirements.”

The USCG will, therefore, not have a direct role in implementing the 2022 Amendments, but will need to verify that “marinized” off-road engines are properly installed into CHC prior to issuing a vessel a USCG certification to operate in revenue service. Such vessel verifications include considerations of vessel stability, trim characteristics, buoyancy, and vessel structural design limits, fire protection requirements, and engine exhaust pipe and engine exhaust cooling requirements. (Appendix E to ISOR, pp E-11 and E-44 to E-45)

Comment 2602.13: “As a final matter, and, as noted in EMA’s earlier comments, an EPA preemption waiver will be required for all aspects of CARB’s proposed CHC amendments as drafted, since CARB is, in essence, proposing to adopt new “Tier 5” standards and other requirements for new and non-new marine engines in California. See CAA Section 209(e). In that regard, CARB will need to assess whether the contemplated rulemaking schedule will allow sufficient time for EPA’s review (which includes a notice and comment process) of the multiple preemption issues, including cost and safety considerations, implicated by the CHC proposal. CARB may need to adjust its rulemaking schedule accordingly, since CARB will be barred from attempting to enforce any of the proposed amendments until after CARB receives a preemption waiver and enforcement authorization from EPA.”

Response 2602.13: CARB staff made no changes to the Regulation Order based on the received comment. CARB enforcement of the 2022 Amendments will require a United States U. S. EPA waiver. This does not prevent CARB from developing and implementing ATCM to control emissions from CHC under both State and federal Health and Safety Statutes. See detailed response to Comment 2602.1.

To the extent the comment asserts that CARB must obtain an authorization prior to adopting the 2022 Amendments, see Response 3118.12.

Comment 3023.8: “During the public comment period, CARB did not consult with the California Department of Fish and Wildlife, the California Fish and Game Commission, the Department of Boating and Waterways, the Coastal Commission, tourism authorities, chambers of commerce, harbor and marina organizations, port authorities, the United States Coast Guard or local government agencies up and down the California coast.”

Response 3023.8: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3023-2 in the Response to Comments on the Draft EA and Response 696.8 regarding CARB’s outreach.

Comment 3038.6: “One more thought; reducing my ability and opportunity to defend my business and livelihood to three minutes of public comment is demeaning, demoralizing, and

everything that is wrong with politics. This rule proposal was pushed through its paces at light speed during a pandemic which we are still in.”

Response 3038.6: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8 regarding CARB’s outreach.

This rulemaking has been a four-year long public process. CARB staff has been available and willing to engage with any stakeholders, trade organizations, Non-Governmental Organizations (NGO), or individual members of the public wishing to participate. CARB staff’s extensive public process is described in detail in Chapter XII of the Staff Report and was further detailed in the 15-Day Notice. However, CARB Board Hearings have limited time for public comment due to the number of people and organizations wishing to comment and the number of Board items that must be heard. The public comment docket is also reopened during the Board Hearing to allow commenters to submit longer comments in writing. Moreover, California Government Code § 11346.8(a) expressly allows agencies to impose reasonable limitations on oral presentations.

Comment 3118.6: “Process Failures, Inaccurate Data, and Bad Policy

On numerous occasions throughout the rulemaking process, both in formal comments on previous iterations of this regulatory proposal as well as at CARB workshop meetings, AWO has pointed out multiple ways in which CARB’s assumptions about the California harbor craft fleet are unsupported by accurate data. We have argued that CARB’s proposed implementation timelines will force some vessel operators to decommission new equipment that already meets the best-achievable performance standard for air emissions. Disturbingly, this input has continually gone unheeded, and nowhere in CARB’s supporting documents can a substantive record of any of this feedback be found. This is a glaring failure of process.

AWO four major concerns with CARB’s approach to this rulemaking have been:

- CARB’s refusal to acknowledge that the rule will have significant negative cost and operational implications on CHC operators, including AWO-member towing vessel operators. The technical solutions offered by the rule are infeasible, overly prescriptive, pick winners and losers in the commercial marketplace, and fail to allow vessel operators to design innovative solutions to achieve emission reduction goals
- CARB’s unwillingness to address and correct acknowledged errors in its vessel population data that drastically overstate the towing vessel population operating in covered waters.
- The unaddressed and unacknowledged uncertainty of the CARB model’s calculations of the health risk created by harbor craft emissions that likely overstates their impact on the public, even beyond the improper inflation created by the overstated vessel inventory.
- The questionable legal authority under which CARB has undertaken this rulemaking.

To date, these concerns have not been adequately addressed.”

Response 3118.6: No change was made to the Regulation Order in response to this comment. CARB staff has provided the following responses to comments submitted by American Waterways Operators (AWO):

Cost, Operational Implications, and Feasibility

CARB staff disagrees that it refused to acknowledge potential negative cost implications. The anticipated cost of the 2022 Amendments and the detailed methodology used to calculate costs are disclosed in the SRIA and the ISOR.

CARB staff disagrees that it refused to acknowledge potential operational implications, or that the 2022 Amendments are infeasible. CARB staff met with AWO, AWO members, other towing vessel stakeholders, and consulted USCG officers stationed at District 11 Headquarters in Alameda, California and the USCG Marine Safety Center in Washington D.C. numerous times throughout development of the 2022 Amendments. CARB staff conducted numerous site visits to better understand the current level of technology utilized in the towing vessel sector in RCW and to better understand the variety of vessel designs and vocations that exist for towing vessels in RCW. CARB staff acknowledges the operational, feasibility, and implementation timeline concerns held by towing vessel operators and recognizes that the power requirements for towing vessel propulsion systems as well as the requirement for some towing vessels to transit great distances for extended time periods when conducting coastal or interstate towing operations currently requires the energy density of diesel-based power systems. Therefore, CARB staff is not proposing to mandate zero-emission requirements for towing vessels in the 2022 Amendments.

However, while recognizing the demanding vocations and duty cycles of towing vessels may exceed the capabilities of current zero-emission technologies available for CHC, CARB staff is aware that the towing vessel sector is one of the largest harbor craft source categories in terms of emissions, which has a disproportionate effect on DACs surrounding shipping ports and refinery terminals. Therefore, CARB is proposing to require all towing vessels to comply with the in-use performance standards described in the Regulation Order. In response to stakeholder concerns, CARB staff has included numerous provisions for compliance deadline extensions allowing more time for eligible stakeholders to achieve compliance.

CARB staff disagrees that the 2022 Amendments are overly prescriptive. The Regulation Order contains provisions for eligible stakeholders to submit an application for an ACE, which specifically provides stakeholders with flexibility to design innovative solutions to achieve emission reductions goals (subject to review and approval by CARB's E.O.).

Towing Vessel Population

CARB staff has worked extensively to refine the towing vessel population data and disagrees that the towing vessel population used in the rulemaking analyses is overstated. CARB staff reviewed the towing vessel population in CARB's reporting database and shared redacted data from the reporting database with AWO and its consultants. CARB staff reviewed the reporting database vessel-by-vessel and conducted web searches utilizing Automated Information System (AIS) data on Vesselfinder.com and/or Marinetraffic.com and/or phone calls to operators of each vessel to determine current operating locations. CARB staff

updated the population in 2020 to reflect two vessels that were found to have sunk and others that moved to operating locations in the Gulf of Mexico or on the East Coast. CARB staff has worked with AWO and numerous towing vessel stakeholders to verify that annual hours of activity in RCW was consistently reported to CARB.

In response to AWO's request during the first December 10, 2018 CHC Rulemaking Public Workshop, CARB CHC Program staff worked with CARB's Air Quality Planning and Science Division (AQPSD) to create new towing vessel subcategories for the updated CHC emissions inventory used for this rulemaking. The CHC Emissions Inventory Update, Methodology, and Results are provided in Appendix H of the Staff Report.

Also see Master Response 3 in the Response to Comments on the Draft Environmental Analysis.

Health Risk Assessment (HRA)

CARB staff disagrees that the HRA overstates the impact of harbor craft emissions on public health, or that the uncertainty of the model is unaddressed or unacknowledged.

Staff Report Appendix G – Health Analyses addresses the uncertainty associated with the health risk assessment and mortality and illness analysis conducted for the 2022 Amendments. An HRA is a complex analysis which requires the integration of many variables and assumptions. The estimated DPM concentrations and potential health risks produced by a risk assessment are based on several assumptions, many of which are designed to be health protective so that potential risks to individuals are not underestimated.

1. Uncertainty Associated with Health Values

The toxicities of TACs are often established based on available epidemiological studies or use of data from animal studies where data from humans are not available. The DPM cancer potency factor (CPF) is based on long-term studies of railyard workers exposed to diesel exhaust in concentrations approximately 10 times greater than typical ambient exposures. The differences within human populations usually cannot be easily quantified and incorporated into risk assessments. Factors including metabolism, target site sensitivity, diet, immunological responses, and genetics may influence the response to toxicants.

Human exposures to DPM are often based on limited availability of data and are mostly derived based on estimates of emissions and duration of exposure. Different epidemiological studies also suggest somewhat different levels of risk. When the Scientific Review Panel (SRP) identified DPM as a TAC,¹⁰ the panel members endorsed a range of inhalation CPF (1.3×10^{-4} to 2.4×10^3 $(\mu\text{g}/\text{m}^3)^{-1}$) and a risk factor of 3×10^{-4} $(\mu\text{g}/\text{m}^3)^{-1}$, as a reasonable estimate of the unit risk. From the unit risk factor an inhalation CPF of 1.1 $(\text{mg}/\text{kg}\text{-day})^{-1}$ was calculated by the Office of Environmental Health

¹⁰ California Air Resources Board, Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A, Exposure Assessment, April 22, 1998, last accessed July 17, 2021, https://ww2.arb.ca.gov/sites/default/files/classic/toxics/id/summary/diesel_a.pdf.

Hazard Assessment (OEHHA), which is used in this HRA. There are many epidemiological studies that support the finding that diesel exhaust exposure elevates relative risk for lung cancer. However, the quantification of each uncertainty applied in the estimate of cancer potency is very difficult and can be itself uncertain.

2. Uncertainty Associated with Air Dispersion Models

As mentioned previously, there is no direct measurement technique to measure DPM in ambient air (e.g., ambient air monitoring). This analysis used air dispersion modeling to estimate the concentrations to which the public is exposed. While air dispersion models are based on state-of-the-art formulations using the best understanding of fluid dynamics, uncertainties are associated with the models.

As stated in Appendix G to the Staff Report, the U.S. EPA modeling guidance accepts the use of CALPUFF as a dispersion model of emissions involving complex terrain and complex winds as well as for longer modeling distances greater than 50 kilometers.

3. Uncertainty Associated with the Model Inputs

The model inputs include emission rates, spatial and temporal emission allocation, source parameters, meteorological conditions, and dispersion coefficients. Each of the model inputs have uncertainty associated with it. Among these inputs, emission rates and meteorological conditions have the greatest effect on modeling results. However, it is difficult to quantify the associated uncertainties.

The emission rate for each source was estimated from the emission inventory. The emission inventory has several sources of uncertainty including emission factors, equipment population and age, equipment activity, load factors, and fuel type and quality. The uncertainties in the emission inventory can lead to over predictions or under predictions in the modeling results. Staff estimated CHC emissions based on the best available information regarding past, current, and projected future engine specifications and activities.

The CHC emission source characteristics also have several sources of uncertainty including stack height, stack temperature, stack exit velocity, and stack orientation. These characteristics vary from vessel to vessel.

4. Uncertainties Associated with the Mortality and Illness Analysis

Although the estimated health outcomes are based on a well-established methodology, they are subject to uncertainty. Uncertainty is reflected in the 95 percent confidence intervals included with the central estimates in Tables G-22 through G-24 of the CHC ISOR Appendix G – Health Analyses. These confidence intervals take into account uncertainties in translating air quality changes into health outcomes. Other sources of uncertainty include the following:

- i. The relationship between changes in pollutant concentrations and changes in pollutant or precursor emissions is assumed to be proportional, although this is an approximation.

- ii. Air quality data is subject to natural variability from meteorological conditions, local activity, etc.
- iii. Emissions are reported at an air basin resolution, and do *not* capture local variations.
- iv. Future population estimates are subject to uncertainty. The further into the future they are projected, the more uncertain they become.
- v. Baseline incidence rates can experience year-to-year variation.

Legal Authority

No change was made to the 2022 Amendments in response to this comment. CARB is authorized by both state and federal law to regulate the emissions of air pollutants generated from marine vessels, and the scope of that authority is not limited to only the engines used in marine vessels.

As CARB explained in the Staff Report for this rulemaking action:

CARB has been granted broad and extensive authority under the HSC to adopt the 2022 Amendments. CARB is authorized to adopt standards, rules and regulations needed to properly execute the powers and duties granted to and imposed on CARB by law (HSC § 39600 and 39601). HSC § 43013 and 43018 broadly authorize and require CARB to achieve the maximum feasible and cost-effective emission reductions from new and in-use non-vehicular and mobile sources, including, to the extent permitted by federal law, the adoption of regulations for *marine vessels*, (HSC § 43013(b)). HSC § 43013(h) directs CARB to expeditiously reduce NO_x emissions from diesel *marine vessels* and other vehicular and mobile sources “which significantly contribute to air pollution problems.” HSC § 43108(a) directs CARB to achieve “the maximum degree of emission reduction possible” from both vehicular and other mobile sources.

CARB is further mandated to reduce emissions of TACs under California’s air toxics laws. HSC § 39666 directs CARB to adopt ATCMs to “reduce emissions of TACs from nonvehicular sources,” such as the DPM emitted from CHC.

CARB is also charged by HSC § 38500 et seq. to monitor and regulate sources of GHG emissions and is directed by HSC § 38560 to adopt regulations to “achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources, subject to the criteria and schedules set forth in this part.”

HSC § 39730 directs CARB to develop a comprehensive strategy to reduce emissions of SLCPs, such as BC emitted by CHC in the state, and HSC § 39730.5 directs CARB to begin implementing that strategy no later than January 1, 2018.

Staff Report, I-1 to I-3 (emphasis added).

These statutory provisions do not restrict CARB’s authority to regulate emissions of air pollutants from marine vessels. HSC §§ 43013(b) and 43013(h) expressly authorize CARB to adopt standards and regulations applicable to marine vessels, defined as “any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation.” HSC § 39037.1. Moreover, the other cited statutory provisions

broadly authorize and mandate CARB to achieve emissions reductions, including reductions of emissions of TACs and GHGs, from “nonvehicular sources,” which are broadly defined as “all sources of air contaminants, including the loading of fuels into vehicles, except vehicular sources.”¹¹ HSC § 39043.

The Federal CAA (42 USC § 7401-7671q) also does not restrict CARB’s authority to regulate emissions from marine vessels. Although CAA section 209(e)(1) (42 U.S.C. § 7543(e)(1)) expressly preempts all states or their political subdivisions from adopting or enforcing emissions standards or other emission-related requirements for certain categories of new nonroad engines or nonroad vehicles - new engines used in farm and construction equipment smaller than 175 hp, new locomotives, or engines used in new locomotives, CAA section 209(e)(2)(A) expressly provides that California can adopt and enforce emissions standards for any other categories of new or in-use nonroad vehicles or nonroad engines, such as marine vessels, provided California obtains an authorization from U.S. EPA pursuant to section 209(e)(2).¹² CAA section 209(e) therefore makes clear that California’s authority to regulate emissions of air contaminants extends to both marine vessels as well as to the engines powering such marine vessels.

Comment 3118.12: “As AWO has expressed in previous comments, we believe that the proposed CHC regulations would, if enacted without express authorization from the U.S. Environmental Protection Agency, violate the federal Clean Air Act as they are “standards and other requirements relating to the control of emissions.”² Although the Clean Air Act expressly preempts state regulation of emissions from many types of engines, it allows California to seek authorization from EPA to adopt standards for certain nonroad engines and vehicles including harbor craft. Federal law limits the standards available to California without express authorization from EPA to “in-use standards.” CARB characterizes certain elements of its proposed regulations as “in-use” standards, which federal courts have determined apply to “use, operation, or movement” of regulated non-road vehicles. Examples of in-use standards include limitations on idling times, carpool lanes, and other use restrictions that control emissions. Despite CARB’s characterization, we believe the CHC rule contains emission performance standards (e.g., opacity testing) that necessitate authorization from EPA. The proposed regulation is not an “in-use” rule because it regulates emissions and engines. In previous meetings, CARB has indicated its intention to discuss this issue with EPA but has provided no information in the record to confirm that the agency has received EPA authorization to proceed with the proposed regulations. It is essential that CARB clarify its legal authority to issue the new rules before proceeding.”

¹¹ Vehicular sources are sources of air contaminants emitted from motor vehicles. HSC § 39060.

¹² Marine vessels fall within the CAA’s definition of a nonroad vehicle. “[A] vehicle that is powered by a nonroad engine and that is not a motor vehicle (a self-propelled vehicle designed for transporting persons or property on a street or highway (CAA §216(2)). See also *Engine Manufacturer’s Ass’n v U.S. E.P.A.*, 88 F.3d 1075, 1101 (D.C. Cir. 1996) (Tatel, dissenting) (discussing air boats used in the Florida Everglades as an example of nonroad equipment).

Response 3118.12: No change was made to the Regulation Order in response to this comment.

In response to the comment regarding the need for CARB to obtain an authorization for the 2022 Amendments, see Response 2602.13

In response to the comment that CARB must clarify its legal authority to issue the 2022 Amendments, see Response 2602.1.

To the extent the comment asserts that CARB must obtain an authorization prior to adopting the 2022 Amendments, the comment is inconsistent with U.S. EPA regulations implementing CAA § 209(e) that “set forth requirements and procedures for U.S. EPA authorization of California’s enforcement of standards and other requirements relating to the control of emissions” from off-road engines.¹³ Those regulations specify that California does not need to request or obtain an authorization before it adopts off-road emission standards or other emission-related requirements, but must obtain an authorization before it can enforce those elements of the 2022 Amendments that require authorization pursuant to section 209(e) of the CAA.¹⁴

Comment 3121.15: “It is our sincere desire to be a constructive participant in the rulemaking process and provide comments that will enable CARB to form meaningful regulations that promote the goal of cleaner air without doing irreparable damage to an industry that all Californian’s rely on to deliver and support the delivery of their essential goods and services. We were disappointed by CARB’s 16-day comment window, on a 113-page draft rule published on April 1st. These proposed rules involve highly technical subjects and the time allowed is not ample to both review the changes from the last draft, nor to prepare constructive comments to address what we believe are significant short-comings, errors, and misrepresentation of facts in the latest version. We did receive notice from Mr. David Quiros that CARB was granting an unpublished open-ended extension period. And while we feel this extension should have been formal and published, we trust that CARB is sincere, and are taking advantage of the opportunity by submitting the following comments for CARBs consideration and action.”

Response 3121.15: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1132.1 et al.

Comment 3158.1 & Comment 3378.2: “If the CHC Proposed Amendments (dated September 21, 2021) are not denied, we request that CARB suspend the suspend the

¹³ Final Rule, Air Pollution Control; Preemption of State Regulation for Nonroad Engine and Vehicle Standards 59 Fed. Reg. 36969 (July 20, 1994). These regulations were subsequently slightly modified and moved to 40 CFR part 1074.

¹⁴ 40 CFR §85.1604. See also, 59 FR 36969, 36982 (July 20, 1994). (“EPA believes that while California may adopt nonroad regulations before receiving EPA authorization, its adoption must be conditioned upon EPA's authorizing those regulations under 209(e). In short, California may adopt, but not enforce, nonroad standards prior to EPA authorization.”)

rulemaking and address the following items in order to comply with the direction of Executive Order N-79-20:

1. Allow Reasonable Time For Upgrades
2. Provide Flexibility In Grant Application Requirements
3. Implement Incentive Based Compliance (Fleet Averaging / Best Available Control Technology (BACT))
4. Include a Small Business Phasing Plan

R.E. Staite Engineering, Inc. has participated in the review of the amendment process, provided information to CARB staff and has made reasonable suggestions for change. The Proposed Amendments will have a devastating impact on our company; R.E. Staite Engineering, Inc. will likely go out of business. As a small business, we do not feel heard or understood. Our suggestions have not been incorporated into the draft proposals, our company data has not been used in a way that we understand, and we have serious concerns about a majority of the data and assumptions used for parts of the analysis. The Proposed Amendments require unrealistic goals in the timeframe provided.”

Response 3158.1 et al.: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff has included provisions in the 2022 Amendments for several compliance deadline extensions to allow eligible operators more time to comply, as provided in subsection 93118.5(e)(12)(E) of the Regulation Order. Extensions could provide operators with up to 11 years before equipment must be upgraded. Compliance deadline extensions for eligible stakeholders may provide additional flexibility when applying for grant funding to repower with cleaner compliant engines in that the later deadline may be used to achieve a greater surplus emissions reduction in order to meet the requirements of incentives programs. Delaying the rulemaking or compliance dates will delay much needed emission reductions from harbor craft and, as a result, harm public health and communities burdened by air pollution near ports, marinas, and harbors.

CARB staff has also developed provisions allowing eligible stakeholders to submit applications for an ACE plan to utilize fleet averaging or some other proposed method of achieving equivalent reductions (subject to review and approval by CARB’s E.O.) This is outlined in subsection (f) of the Regulation Order.

The low-use exemption provision has been updated to a tiered Low-Use Exception approach allowing up to 700 hours of annual operation for Tier 3 or Tier 4 engines, 400 hours for Tier 2, 2,300 hours for Tier 1, and 80 hours for a pre-Tier 1 engine. Low-use exception applications are subject to E.O. approval and a 50% reduction in allowable hours if operating within a DAC or having regularly scheduled stops within two miles of a DAC (subsection (e)(14) of the Regulation Order).

To incentivize early adoption of zero emission technologies CARB staff has included a ZEAT credit that can be applied to another vessel in an operator’s fleet allowing compliance extensions of either three or seven years depending on the equivalent reductions attained by

the hybrid or zero-emission vessel utilized to apply for the ZEAT credit. Newly acquired excursion vessels or short-run ferries must adopt zero emission technologies three years early in order to apply for a ZEAT credit. All other vessel categories can apply at any time. The ZEAT credit is subject to approval by CARB's E.O. and is outlined in subsection (e)(11) of the Regulation Order.

All of these provisions listed above provide regulated vessel or fleet operators with a number of options for a pathway to compliance, deadline extensions if necessary for eligible stakeholders to provide sufficient time for engine technology and grid infrastructure development, and incentives for some fleet operators to adopt zero-emission technologies early in order to utilize the ZEAT credit.

CARB staff also committed at the March 24, 2022, Board Hearing to complete a biennial technology and implementation review to track the advancement of cleaner combustion and zero-emission technology in the marine sector, which could inform future regulatory action to require more zero-emission standards as it becomes feasible in the marine sector. CARB staff also committed to explore opportunities for CHC zero-emission contingency measures to include in the SIP.

Also see Master Response 3 in the Response to Comments on the Draft Environmental Analysis for accuracy of assumptions and estimates.

Comment 3195.1: "Because a comprehensive economic and social justice study was not completed and accurate costs for vessel replacements were not obtained, the proposed rule and associated work product is based on faulty assumptions and fails to evaluate the economic impacts to the inspected CPFV fleet, impacts to equitable and affordable access to our oceans, ocean education, reduced reach of programs offered for Title 1 schools, at-risk individuals, veterans, and other groups served by non-profits and to state conservation funding. As detailed in this letter and supporting documents, the rule will lead to the gentrification of ocean access where only those of significant means can afford to access the vessels that may remain after implementation of the rule."

Response 3195.1: CARB staff disagrees with the assertion that it did not utilize or obtain accurate costs for vessel replacements. Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A: Cost Analysis Inputs and Assumptions for the SRIA. The vessel replacement costs are also listed in Appendix A of the SRIA. The sources of cost estimations included stake holder inputs, California Maritime Academy (CMA) Study¹⁵ and other sources. The CPFV vessel replacement cost in the SRIA was based on the cost of approximately about 100 new vessels with data provided by the SAC and one new vessel cost from the CMA study. This represents the best available data when considering

¹⁵ Cal Maritime, Evaluation of the Feasibility and Costs of Installing Tier 4 Engines and Retrofit Exhaust Aftertreatment on In-Use Commercial Harbor Craft, September 30, 2019, last accessed July 16, 2021, <https://ww2.arb.ca.gov/sites/default/files/2019-10/cmafeasibilityreport09302019.pdf>.

the cost effects of the Proposed Amendments. CARB staff also disagrees with the assertion that the rulemaking is based on allegedly faulty assumptions or that the rulemaking failed to evaluate the economic impact to inspected CPFV fleets. Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of Senate Bill (SB) 617 and the California Department of Finance (DOF). The SRIA evaluated the cost and benefit impacts of the 2022 Amendments, including impacts to CPFV sector with economic indicators like employment, gross State product, and output.

CARB staff also proposed a 15-Day change to provide a one-time, ten-year compliance extension pathway for CPFV owners. See Response 1.7 et al.

Comment 3195.3: “It is evident by our interaction with CARB, and how the proposed rule was developed, that CARB has little understanding of maritime operations, the economics of ocean-dependent businesses, and our customers. The inherent bias is displayed by CARB shrugging off the report they commissioned from the Cal Maritime Academy that raised the same fitment and safety issues between Commercial Fishing Vessels and CPFVs, then dismissively stating in the media that CPFVs can just raise ticket prices to buy new boats. Consequently, the proposed rule stands to make the sportfishing and whale watching industry obsolete, denying millions of Californians access to offshore fishing and marine life.”

Response 3195.3: Appendix E of the ISOR outlines California State University (CSU) Maritime Academy’s 2019 Tier 4 Feasibility Study beginning on page E-42. One representative vessel from each of 13 regulated categories was selected for evaluation utilizing the original equipment manufacturer (OEM) Tier 4 engines and OEM retrofit exhaust aftertreatment technologies available in the 2018-2019 timeframe. While this study was informative, CARB staff’s conclusion is that feasibility must be evaluated on a case-by-case basis as more U.S. EPA certified engine and CARB Marine Verified retrofit aftertreatment technologies are commercialized in applicable power subcategories.

See Response 696.8 regarding CARB’s outreach and Response 1.7 et al. regarding 15-day changes.

Comment 3195.8: “While there are many flaws in the proposed rule and supporting documentation by CARB, including life, health and safety concerns noted by the Cal Maritime Academy and vessel owners, CARB makes egregious errors in its air modeling and lack of transparency. As of the submission of this letter, CARB still has not been able to provide full and accessible documentation on their modeling or data for analysis by vessel owners.”

Response 3195.8: CARB staff made no changes to the Regulation Order based on the received comment. See Response 696.8 for information regarding outreach and Response 3118.6 for information on air dispersion modeling methodology.

In addition to posting required rulemaking documents, CARB staff has responded to requests for information on the rulemaking analyses by posting cost analysis workbook, health risk analysis and emissions inventory modeling, as well as methodology for estimating health benefits and emissions reduction. This information was posted to allow for public

comment on data and assumptions used (The cost analysis workbook and the emission inventory modeling were posted in September 2021 and the health risk analysis modeling was posted in October 2021). Stakeholders were also informed that the public comment docket would be opened during both the November 19th and March 24th Board Hearings, if stakeholders needed more time to draft formal comments.

Comment 3195.10: "Information as important as this to a major rulemaking should be much easier to access and available much earlier in the rulemaking process. CARB should provide the data in the most easily readable and universal programs possible. There should be more detailed data tables in your staff report, or attached to it, that have every emissions modeling, risk, and health benefit data point for each year, vessel category, and air basin as well as all of the input variables used in the calculations and their sources.

Transparency should be the order of the day, and the format and timeline in which you have supplied data is far from transparent. It feels as if CARB is making access to these data as difficult as possible as well as providing data so late in the process that there is not adequate time to do the necessary review.

And while CARB staff agreed to discuss the limited issue of why they combined uninspected six packs and inspected CPFVs on October 28, 2021, which we accepted the next day, CARB informed us they would propose dates and times on November 3, 2021, but no further communication has been received."

Response 3195.10: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff provided and released to the public the information supporting the rulemaking by the applicable regulatory deadlines. See Response 696.8 regarding outreach, Response 1458.1 regarding Emissions Inventory materials, Responses 2588.7 and 2588.11 regarding Emissions Inventory methodology, Response 3195.8 regarding additional posted materials, and Response 1132.1 et al. for staff's response to requests to extend comment periods. Also see Response to Comment 3195-2 in the Response to Comments on the Draft EA.

Comment 3195.29: "CARB Has Not Made the Necessary Information Available to Adequately Review the Alleged Emission and Health Impacts/Benefits from the Rule

SAC and its consultants have been trying to obtain detailed emission, air dispersion modeling, risk assessment, health benefit, and cost information for CPFVs for months, dating back to as early as May 2021. CARB has provided limited, piecemeal information, and kept putting us off, suggesting the material would be available when the rule package came out. To begin with, this is too late. CARB should have supplied this information to affected industries well ahead of the rulemaking so that there would be time for review and correction of the information by those that know the regulated sources the best. However, even when the draft rule came out on September 21, 2021, this information was not complete. CARB has continued to provide piecemeal information since September 21, 2021, including the latest submittal on October 27, 2021, which is five weeks after the draft rule and only two

and half weeks before comments were due. Nevertheless, even this information is not complete.”

Response 3195.29: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3195-2 in the Response to Comments on the Draft EA, which directly responds to this comment. Also see Response 696.8 regarding CARB staff’s public process and outreach, Response 1458.1 regarding posting of the emission inventory, Response 2588.7 and Response 2588.11 regarding stakeholder input into the emission inventory and emission inventory assumptions, Response 3118.6 which addresses uncertainties associated with the health analysis methodology, and Response 3195.8 regarding additional posted materials.

Comment 3195.33: “Much of the data and analysis that was furnished by CARB arrived late, weeks after the public notice and comment period commenced, and was presented in cumbersome and, in several instances, wholly inaccessible format, preventing meaningful analysis. The industry and the public deserve complete transparency and data before such disruptive standards are adopted.”

Response 3195.33: See Response 3195.29.

Comment 3195.40: “While the Legislature has prioritized the health and wellbeing of Californians by directing CARB to take prudent action to reduce airborne toxins within our state, the Legislature also demanded the actions be prudent and balanced, through implementation of programs that are ‘practicable’ (HSC §39650(k)) as well as ‘cost-effective, and technologically feasible’ (HSC §43013(a)).” How has CARB satisfied that directive?

Given that most Californians do not have the luxury of owning a recreational boat, does CARB agree it has a responsibility to consider potential negative monetary and non-monetary impacts of its regulations on non-profits, educational programs, and disadvantaged and lower income communities?

Does CARB believe the proposed regulation are practical, cost effective and technologically feasible if the outcome is significant economic damage, loss of jobs and limiting access to offshore fishing and marine life observation?”

Response 3195.40: Please see Master Response 1 in the Response to Comments on the Draft EA for the Technology Feasibility of the 2022 Amendments.

Please see Master Response 2 in the Response to Comments on the Draft EA for the Economic Impacts of the 2022 Amendments.

Please see Master Response 4 in the Response to Comments on the Draft EA for the Indirect Impacts of the 2022 Amendments.

CARB staff disagrees that it refused to acknowledge potential negative cost implications. The anticipated cost of the 2022 Amendments and the detailed methodology used to calculate costs are disclosed in the SRIA and the ISOR. The SRIA evaluated the cost and benefit

impacts of the 2022 Amendments, including impacts to CPFV sector with economic indicators like employment, gross State product, and output.

Please see Response 1.7 et al. regarding the proposed 15-day change providing a one-time, ten-year extension option for CPFV.

Comment 3195.45: "CARB's effort, analysis and transparency for this proposed rule is lacking in every area, which makes it impossible to adequately assess the contributions of CPFVs to emissions in regulated waters and evaluate the economic and social justice benefits of alternative methods to reduce emissions. CARB leaves so many unanswered questions that are critical in understanding the effects of the proposed rule that the existing proposal is at best arbitrary, based on preconceived notions of the staff and not supported by actual data. We have discussed many of these concepts above and with CARB directly, which as noted were ignored or dismissed in preparation of the proposed rule. In addition to the issues identified above, below we list many of the concerns with the lack of effort and the proposed rule in question format so that the breadth of CARB's omissions is painfully obvious.

A. CARB's Public Communications and Stakeholder Outreach has been Inadequate

Have the regulations proposed by CARB been implemented anywhere else in the United States? If not, why not?

Before mandating the regulations and untested technology on one of the largest fishing fleets in the country, would CARB consider financing the construction of a proto-type passenger sportfishing vessel to determine construction and operating costs, and potential threats to the safety of passengers and crew? If not, why wouldn't this be a prudent first step to developing emission regulations that are economically feasible and safe?

CARB's overall rule outreach and public notice has been inadequate. Did CARB reach out to the Golden Gate Fishermen's Association (GGFA), an organization that represents Northern California commercial passenger boat owners?

Did CARB convene a meeting with boat owners to determine if their application of Tier 4 engines and technology could safely and economically apply to passenger boats and fishing practices?

Has CARB notified all CPFV owners that their boats may be removed from service?

Why did CARB not accept offers to host in-person workshops from the associations representing CPFV owners?

As recommended by the associations, when CARB released its amended CHC regulations Sept. 21, 2021, did CARB send a letter to every boat owner requesting public comment and notifying them of the hearing (every engine is registered with CARB and commercial fishing licenses are filed with the California DFW)? If not, why not? By CARB's own admission, sportfishing and whale watching boats constructed of

wood and fiberglass will likely have to be removed from service. Has CARB communicated this to every boat owner? (Over 80% of boats are constructed of wood and fiberglass, and no determination has been made that existing metal boats can comply.)

CARB's Consultation with and Consideration of the Impact on Vessel Owners has not been Sufficient or Transparent

Did CARB consult with boat manufacturers on replacement costs? If yes, who and how many? Since the technology has not been developed for passenger boats yet, how does CARB know the true capital and operational cost of Tier 4 engines, DPFs and other add-ons necessary to accommodate this equipment, and the cost of new custom boats to house untested equipment?

CARB believes that increasing passenger ticket prices can cover the cost of new boats and has calculated a ticket price increase that will be needed. Has CARB completed a market analysis to see if that ticket price could be supported? If so, will this information be released publicly?

For CARB to conclude that increasing prices was a viable option they would have had to had access to (many) boat owners' business records. Did they?

CARB's economic analysis concluded that if boat owners could not pass on higher passenger ticket prices to customers, some boat owners could go out of business. What is CARB's estimate of the number of businesses that will go out of business and the impacts that will occur due to these business closings? Where is this analysis?

In CARB's analysis, what was the price point or how much of an increase would anglers and families accept before choosing to do something else with their recreational dollars?

Did CARB consult with the California Department of Fish and Wildlife (CDFW) to determine what impact fewer passenger boats or higher prices would have on fishing participation rates, both today and in the future? What impact would declining fishing license sales and revenue have on fishery and conservations programs administered by CDFW and boater safety programs with the Department of Boating and Waterways?"

Response 3195.45: CARB staff's extensive public process is described in Chapter XII of the ISOR. Economic analysis assumptions are detailed in the SRIA and Chapter IX of the ISOR.

The regulations proposed by CARB have not been implemented anywhere else in the United States, please see response 2602.1 for more detail.

Staff documented the information on technical feasibility in Appendix E of the ISOR. CARB staff committed at the March 24, 2022, Board Hearing to complete a biennial technology and implementation review to track the advancement of cleaner combustion and zero-emission technology in the marine sector, which could inform future regulatory action to require more

zero-emission standards as it becomes feasible in more areas of the marine sector (See Response 1094.1 et al.).

During the development of the Proposed Amendments to the CHC Regulation, CARB staff conducted numerous meetings with members of impacted communities, environmental justice advocates, industry stakeholders (including vessel operators, seaports, terminal operators, industry associations, engine manufacturers, and emission control technology manufacturers), and public agencies (including Air districts, United States Coast Guard, and California Public Utilities Commission). Please see Response 1021.2.

As stated in SRIA, staff used the Regional Economic Models, Inc. (REMI) model to estimate the impact of the 2022 Amendments on California's economy, including impacts on jobs and business. See Response 1.3 et al. regarding ticket price increases.

See Response 1.4 et al. regarding the concerns of business elimination because of the 2022 Amendments.

Also see Response 696.8 regarding outreach, Response 1.7 et al. regarding 15-day changes, and the response to Comment 3174-1 in the Response to Comments on the Draft EA.

Comment 3195.61: "On behalf of CPFV's throughout the state of California, SAC and GGFA recommend the following modifications to the current CHC amendment: ...

That CARB initiate a thorough outreach campaign for all California Fishing Vessels. SAC and GGFA have offered several recommendations on how this can be completed more effectively."

Response 3195.61: CARB staff made no changes to the Regulation Order based on the received comment. See Response 696.8 regarding outreach.

Comment 3261.16: "We also encourage CARB to direct its staff to consult with the California Department of Fish and Wildlife, the California Coastal Commission, port/harbor/marina groups, and boat construction firms to better understand maritime and fishing practices in California's CPFV and commercial fishing fleets to help ensure the most effective and practicable regulation amendments."

Response 3261.16: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8 regarding outreach.

Comment 3263.1: "It's clear that CARB clearly does not understand nor did not take time to learn about the affected vessels' operations and business environment. They also don't understand the demographics, motivations and financial abilities of their customers."

Response 3263.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8 regarding outreach.

Comment 3339: "So when we're left to our devices, we do the right thing. But when regulators come in and try to push things down on us and try to drive innovation through regulation instead of incentives, I've never seen it to work properly."

The classification, a lot of the vessels that are falling into harbor craft are incorrect. And I get the feeling that CARB is using this harbor craft as a catch-all to account for a ton of emissions that they can't properly account for."

Response 3339: CARB staff made no changes to the Regulation Order based on the received comments.

Staff defined the term "harbor craft" or "Commercial Harbor Craft" consistently from the 2011 CHC Regulation to the 2022 Amendments:

"Harbor Craft" (also called "Commercial Harbor Craft") means any private, commercial, government, or military marine vessel including, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, barge and dredge vessels, commercial passenger fishing vessels, oil spill response vessels, USCG vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

CARB staff has separated harbor craft into 18 categories in the emission inventory and economic analysis (Please refer to Appendix H and Appendix C of the ISOR for the emission inventory and economic analysis).

While CARB staff recognizes that many operators have voluntarily upgraded their engines, CHC are still one of the top three emissions sources at ports in California, as described in Chapter II of the Staff Report.

Comment 3378.1: "R.E. Staite Engineering, Inc. has been an engaged partner in the review of the Proposed Amendments to the current CHC regulations. We have provided information about our company and equipment, identified our concerns and have proposed reasonable solutions. While our data has been used and our comments have been accepted for review, we have still felt like a check mark on a to-do list in order to meet a deadline.

Our comments made in our November 15th letter to Board are still applicable (attached for reference) and we do not feel like they have been addressed in a meaningful way. We would like the following four items addressed prior to approval of the proposed regulations:

1. Allowing A Reasonable Timeframe For Upgrades for Commercial Harbor Craft;
2. Providing Adequate Funding and Flexibility In Grant Application Requirements;
3. Implementing Incentive Based Compliance (Fleet Averaging / Best Available Control Technology (BACT)); and
4. Including a Small Business Phasing Plan

In addition to the above items, we would like to request that CARB staff employ a maritime expert that knows our vessels and their capabilities and can serve as a liaison between stakeholders and CARS staff to assist with implementation of this new rule.

We would encourage the Board to NOT approve the proposed regulations today, but to continue to have Staff work with the engaged stakeholders to refine the proposal and its compliance processes so that it is workable for the maritime industry while still achieving emission reductions.”

Response 3378.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. for information on the flexibilities included in the 2022 Amendments. The commenter’s request to CARB to employ a maritime expert is not directed to the 2022 Amendments or procedures used in its proposal or adoption; therefore, does not require a response.

Comment 3392.2: “Why? Because the process has ignored the realities of our industry and has created an irresponsible piece of regulation. CARB staff lacks the subject matter expertise to understand the nature of our operations and the technological limitations of installing unproven and unapproved devices on our vessels. The comment and outreach process, critical to any rulemaking process, is intended to provide regulators with this understanding. While staff would lead you to believe this took place, it has not. Our comments and input to staff were all but completely ignored and the intent of the comment periods were undermined by sloppy staff work. I will highlight the CARB staff’s responses that demonstrate the failure in the process.”

Response 3392.2: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8 regarding outreach and Response 3195.8 regarding posted materials. Furthermore, CARB staff has not ignored comments, rather has summarized commenters’ objections and recommendations and provided responses in this FSOR.

Comment 3392.6: “Finally, we’d point out that CARB staff made an error in labeling their data set released during the open comment period in the fall of 2021. This error not only cost us an opportunity to assess the efficacy of the emission and health study, but also wasted thousands of dollars and all the hundreds of hours of resources we put into the effort. What we found especially egregious was in their response they blamed our consultant for the mistake and did not acknowledge their own error. Such an error should have invalidated the comment period and restarted the clock. You as Board members should appreciate the unfairness of this situation and should be offended that staff chose to intentionally leave their error out of the response. Ramboll compared the model data provided by CARB staff, labeled as PM, to actual PM figures from shore-based sampling points. CARB staff rightly pointed out in their response to our comments, that Ramboll instead compared modeled cancer risk (in chances per million) to ambient PM2.5.”

Response 3392.6: Staff assumes the commenter is referring to Appendix G to the Staff Report and the CHC health risk analysis modeling files, which include both PM2.5

concentrations and DPM cancer risk values and are available for download at the CHC website.¹⁶

CARB's emission inventory, air quality dispersion modeling and therefore modeled cancer risk is accurately described in Appendix G to the Staff Report.

The modeling files have been available for download since October 2021, and contain many files including modeling and results files. The results files "CHC_BA_CR_210620_WDAC.xlsx" and "CHC_SC_CR_210620_WDAC.xlsx" accurately report each CHC vessel category's modeled and final concentrations and DPM cancer risk values. The results files "CHC_2023BA_Conc_210620.xlsx" and "CHC_2023SC_Conc_210620.xlsx" also accurately report each CHC vessel category's modeled and final concentrations. For the Bay Area and South Coast air basins, each vessel category's coarse particulate matter (PM10) hourly average concentration values are provided and accurately reports modeled concentration values at each receptor (30 files were provided).

Units were mislabeled in the following cancer risk files.:

BA_PMALL_CR_AllCat_2023Base.DAT, BA_PMALL_CR_AllCat_2038Base.DAT, BA_PMALL_CR_AllCat_2038RegConcept.DAT, SC_PMALL_CR_AllCat_2023Base.DAT, SC_PMALL_CR_AllCat_2038Base.DAT, and SC_PMALL_CR_AllCat_2038RegConcept.DAT. For each file, the unit "µg/m³" was changed to "chances per million". All numeric values remained unchanged.

Multiple files were available to verify the validity of cancer risk values in Appendix G. Those same files were also available to identify the mislabeling of units in the six cancer risk files listed above. Additionally, CARB staff maintains that the consultant should have recognized that the units were incorrect because the conclusions were unrealistic (the consultant's modeled PM2.5 concentrations from CHC only were significantly greater than ambient PM2.5 measurements which included all sources) and did not match the values in the Staff Report.

See Response 1132.1 et al. for information regarding the extension to the 45-day comment period.

c. Feasibility/ Availability/ Safety

(1.7) (2.2) (12.1) (17.1) (43.1) (44.2) (45) (50) (53.4) (56.5) (59.3) (70.3) (83.1) (86.3) (88.1) (89.2) (90.1) (102.1) (103) (105.1) (108.2) (109.2) (110.2) (118) (144) (149) (160) (195) (229) (230.1) (272.2) (274) (283) (300) (328) (336) (346) (355) (364) (367) (371) (372) (373) (382) (383) (392.2) (400) (401) (403) (410.3) (410.6) (413) (414) (428.1) (449) (482) (536) (549) (566) (574) (581) (595) (606) (614) (618) (619) (644) (645) (651.2) (651.5) (667) (679) (692) (725) (748) (750) (762.1) (767) (777) (795) (805) (821) (823) (849) (856) (871) (901) (902) (909) (920.3) (953.1) (970.1) (992.1) (1003) (1021.1) (1029) (1041.1) (1056) (1065) (1072) (1073) (1074) (1080) (1081.2) (1096) (1097) (1098) (1109) (1111) (1114.3) (1114.4) (1118) (1128.1) (1129.1) (1132.3)

¹⁶ CARB, Commercial Harbor Craft – Health Risk Files <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

(1144.1) (1146.4) (1147) (1148) (1152) (1153.1) (1232) (1245.1) (1246) (1266) (1285.1) (1315)
(1327.1) (1354) (1358) (1366.2) (1380.4) (1395) (1402.1) (1413) (1428.1) (1432.4) (1438.2)
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(2594.3) (2594.5) (2594.6) (2602.3) (2606.1) (2607.2) (2613.2) (2628.1) (2629.2) (2635) (2684.2)
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(2891.1) (2909.1) (2932) (2933) (2944.1) (3014.2) (3017) (3030.2) (3031) (3041) (3158.2)
(3158.5) (3165.9) (3180.2) (3184) (3194) (3195.12) (3195.2) (3195.2) (3195.22) (3195.23)
(3195.6) (3197) (3201) (3208.1) (3218.2) (3224.1) (3233) (3240.1) (3261.11) (3264.2) (3264.3)
(3264.5) (3267.1) (3269) (3271) (3288.1) (3290) (3292.2) (3298) (3302.2) (3314.1) (3318) (3325)
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Summary of Comment 1.7 et al.: Many comments expressed concerns over the feasibility, availability, and safety of Tier 4 + DPF technology, especially from the sportfishing industry which typically have wood and fiberglass vessel hulls, and in many cases, small engine rooms. Commenters affiliated with the sportfishing industry indicated that sportfishing vessels would need to be twice as big to accommodate DPFs, requiring a passenger reduction of 50 percent or more, and making the vessels too large for their docking spaces. Many commenters referenced the SRIA, which estimated that 99% of sportfishing vessels would need to be replaced to comply with the requirements, due to the wood and fiberglass construction of vessels. Some comments referenced the CSU Maritime Academy feasibility study, which concluded that engines that meet the existing standard do not yet exist, and that the alternative (modifications/aftertreatment) will significantly impact a vessel's stability.

Commenters requested that CARB wait until the technology is commercially available to adopt the Proposed Amendments, as they do not believe that engine and DPF manufacturers will be able to develop the equipment before compliance dates. Some comments indicated that the hp needed for sportfishing vessels to operate safely and efficiently cannot be achieved with new engine standards. Other comments expressed concern over shipyard capacity and supply chain issues delaying or driving up costs of building of replacement vessels or the repowering of existing vessels, and concerns over the energy capacity of the grid supporting shore power or zero-emission infrastructure.

Commenters also expressed concerns over the safety of this equipment, stating that Tier 4 engines run hotter than lower tiers, and may catch fire. Furthermore, commenters stated that DPFs may clog and present safety hazards. Many commenters also stated that the Proposed Amendments require technology that has not been developed or proven safe at sea, and is

economically and structurally impossible to comply with, requiring vessel replacements for the sportfishing industry. Commenters suggested that the new engines require fluids in an amount that makes them impossible to carry on sportfishing vessels, and expressed concerns over a diesel exhaust fluid (DEF) sensor issue with this equipment on trucks. Many comments indicated that Tier 4 + DPF has not been approved by the United States Coast Guard. Commenters also indicated that lithium-ion battery technology is unreliable, dangerous, and suffers from supply chain issues.

Furthermore, there were common misconceptions from commenters affiliated with the sportfishing industry that the Proposed Amendments were banning sportfishing, banning wood/fiberglass vessels, exempting metal vessels, requiring Tier 5 engines, requiring all sportfishing vessels to be replaced in 2023, or that recreational boat owners are affected by the Proposed Amendments.

Response 1.7 et al.: Comments regarding safety and feasibility of the performance standards are addressed in Master Response 1 in the Response to Comments on the Draft EA. Master Response 5 in the Response to Comments on the Draft EA further discusses feasibility and availability of technology.

CARB's analysis of shipyard capacity is provided in Section IV.E of Appendix E of the Staff Report.

See Response to Comment 2446-1 in the Response to Comments on the Draft EA regarding the capacity of the energy grid to accommodate electrification of mobile sources including harbor craft.

Regarding passenger reduction concerns, the Regulation Order specifies that for extensions to repowering engines or installing DPFs, vessel modifications resulting in a passenger capacity reduction of 25 percent or more are considered not feasible if supporting documentation demonstrates that reducing passenger capacity will operationally result in increased emissions.

Regarding infrastructure concerns or supply chain issues, the 2022 Amendments provide compliance extensions for infrastructure delays or equipment installation delays. See Response 2617.3 and Response 3105.1 for more information regarding these compliance extensions.

Regarding USCG's role in approving equipment, see Response 2696, Response 2602.1, Response 3305, and Response 3402.3.

Also see Response 3158.1 et al., for additional flexibilities available for all CHC vessel types including ACE plans, ZEAT credits, and extensions.

In response to CPFV stakeholder concerns and as directed by the Board, CARB staff released a Notice of Public Availability of Modified Text for a 15-day public comment period on May 19, 2022. This modification established a compliance extension for CPFVs that will allow operators to delay compliance with Tier 4 + DPF standards until the end of 2034, if the vessels are operating with Tier 3 engines by the end of 2024.

CPFVs present a unique harbor craft sector that support a large community and culture of land-based waterfront businesses providing jobs to many Californians living nearby in

surrounding communities. Many CPFVs operate in a dual-vocation with many of them working seasonally as commercial fishing vessels (CFVs). Many CPFVs are owned and operated by small businesses, which are generally not in a strong position to finance vessel-specific feasibility evaluations to apply for compliance extensions. Because of the unique compliance feasibility issues, many of these companies would have been granted compliance extensions based on engine technology available today, and in staff's analyses, 99 percent of CPFVs were assumed to comply by vessel replacement, not repower or retrofit, although drop-in repower and retrofit options may become available in the near future. In most cases, the originally proposed compliance extensions would allow CPFVs to operate with Tier 2 and older engines for six to eight years before upgrading to Tier 4 + DPF. Therefore, for this category of vessels only, early upgrade to Tier 3, followed by a transition in 2034 to the Tier 4 + DPF performance standard or zero-emission, would provide a unique opportunity for early emission reductions while preserving the long-term emission benefits of the rule.

This extension option for CPFVs provides more certainty for operators, while providing adequate time for operators to plan financially to upgrade to cleaner technology without taking away affordable ocean access for communities or losing businesses that bolster local and State economies. This later compliance date will allow CPFV owners to apply for incentive program funding for early or additional emission reductions they can achieve before the new 2034 deadline.

This ten-year extension option will also give equipment manufacturers time to develop technology that is more feasible for CPFVs. By 2034, CARB staff expects technology options for Tier 4 + DPF engines to be available as drop-in replacements that would not require substantially modifying or replacing CPFV as modeled under the original proposal.

Additionally, this extension option will lessen costs for CPFV owners to prepare extension applications, and lessen capital costs for the CPFV industry since fewer vessel replacements would occur if drop-in technology is developed before 2034 as CARB staff expects.

In addition, the 15-day changes added language in subsection 93118(e)(12)(E)3.b.iii. allowing non-vessel-specific third-party naval architect analysis for vessels of any category with hull materials of wood, fiberglass, or fiberglass-reinforced plastic to satisfy the feasibility analysis requirement for the initial two-year extension application. See Response 3195.4 for more information.

Comment 201: "The fishing boat needs to troll at 2 to 5 knots. The proposed engines have to run at 15 knots."

Response 201: CARB staff made no changes to the Regulation Order based on the received comments. Tier 4 marine engine applications utilize active SCR aftertreatment or exhaust gas recirculation strategies that will operate when required regardless of average engine load factors. DPFs with active regeneration will also operate when required regardless of average engine load factors. Please review Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies in the ISOR, Pages E-21 through E-36 for more information on how these technologies work.

Comment 332: "It is highly unfair to be proposing regulations of tier 4 engines for these boats, when the tier 4 equipment is not even been manufactured and would not be available

by the time CARB wants to imply the regulations. If these engines and pertaining equipment with these engines had not been manufactured and have not been tested for safety and stability capabilities of the vessel, how can you expect to be fair to thousands of vessel owners of this state?.... From what I understand also is a lot of the proposed equipment is quite larger than the current powerplants in these boats. The proposed equipment which includes DEF Fluid tanks that would be massive and will require refitting the boats and they will lose some berthing for these tanks, which will require them to lose passengers by reducing bunk space to make room for equipment. The new tanks and equipment will potentially cause stability test and now the Coastguard will have to take on the huge task of providing the stability test to ensure for passenger safety. As for the DEF fluid, I work in a industry where the trucks have DEF fluid and when it burns off, it is very heavy, smells horrible, and is no better than just regular exhaust of a boat.... Hopefully you guys can come up with a solution for engines such as tier 3 engines that alot of boat owners have been upgrading too thru out the years.”

Response 332: No changes were made to the Regulation Order in response to this comment. CARB staff is aware that vessel operators can potentially install smaller polymer DEF tanks that are more feasible for smaller vessel designs. 32 percent or 40 percent liquid DEF does not have a strong chemical odor by itself. Liquid DEF that is injected into the exhaust system upstream of a catalyzed SCR reactor (as intended) does not produce a strong chemical odor.

Also see Response to Comment 332-1 in the Response to Comments on the Draft EA, and Comments in section IV.C.1.c. for testaments from manufacturers on engine availability.

Please review Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies in the ISOR, page E-34, Selective Catalytic Reduction (SCR) Systems.

Comment 384: “Current vessels cannot afford the changes, nor can the vessels themselves handle the equipment. It is grotesquely heavy and cumbersome, and would, if installed, destroy the integrity of the vessels stability. Such changes would undoubtedly invalidate it's seaworthiness certification.... I also understand that the proposed equipment is still in it's infant stages and not readily available, period.”

Response 384: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments, Response 3119.5 regarding feasibility extensions, and Response 3165.5 regarding feasibility determinations.

Please review Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies in the ISOR, pages E-42 – E-45.

Comment 696.1: “A recent CARB commissioned California Maritime Academy study concluded that, #1- marine application engines that meet the proposed standards do not exist yet and, #2- would significantly impact a vessel's stability. Due to the excessive heat produced and the massive increase in size and weight - by CARB's own admission - "vessel

replacement will be likely, especially in the categories with wood or fiberglass vessels" to comply with the proposed tier 4 mandate. With an overwhelming majority of sport fishing and whale watching boats constructed of these materials, nearly all of California's iconic charter boat fleet will be unable to comply."

Response 696.1: CARB staff made no changes to the Regulation Order in response to this comment. See CARB staff's response to Comment 696-1 in the Response to Comments on the Draft EA.

Comment 696.3: "Comparable, relatively new technology currently being used in trucks and heavy equipment such as farm machinery has been documented to clog the Diesel Particulate Filter causing engines to stall & requiring hours to clean out the system and in some cases even causing engines to catch fire. These issues occur more frequently in engines run at low RPM's... precisely the type of application common amongst these vessels in low speed trolling. While stalling and fire might be daunting to operations in a "best case scenario" land based situation, these problems on a boat miles from shore and hours from potential help could very well lead to a truly tragic end. In a remarkably stunning omission, these regulations have NOT been developed in collaboration with the US Coast Guard who are tasked with regulating stability and fire hazard on this state's navigable waters."

Response 696.3: CARB staff made no changes to the Regulation Order in response to this comment. See Response to Comment 696-2 in Response to Comments on the Draft EA.

Comment 696.10: "2. Can the board please provide a realistic analysis of technological feasibility including some response to the well documented safety concerns ?? Clearly the current analysis is significantly flawed."

Response 696.10: CARB staff made no changes to the Regulation Order in response to this comment. See CARB staff's Response to Comment 696-3, Master Response 1, and Master Response 3 in the Response to Comments on the Draft EA.

Comment 724.2: "We are concerned about the California Air Resources Board's (CARB) costly proposal on engine emission regulations because it 1) requires technology that has not been developed or tested safe on passenger harbor crafts and 2) would result in most passenger sportfishing and whale watching boats going out of business within 6 years from the adoption of the proposed regulations due to the cost of vessel replacement."

Response 724.2: See CARB staff's responses to comments 724-1, 696-2 and 696-3 in the Response to Comments on the Draft EA, and Response 1.7 et al. regarding 15-day changes.

Comment 1020.2: "The majority of sportfishing boats are older, retrofitting them is not an option, even if the parts were available. Their power plants run at much lower rpm's than what would be necessary for air scrubbers to work without loading up and damaging the engine."

Response 1020.2: See Response 1.7 et al. regarding 15-day changes and CARB staff's Response to Comment 1020-1 in Response to Comments on the Draft EA.

Comment 1603.1: "Under the proposed regulations, the amended regulations would take effect on January 1, 2023. The documentation CARB provided our city states that

"22 models [of Tier 4 engines] are certified." However, the California Maritime Academy has reported that these engines are not approved for passenger fishing vessels at this time. They report that engine manufacturers are still working with the U.S. Coast Guard to ensure safety and seaworthiness of Tier 4 engines in passenger vessels. We are concerned that the timeline proposed by CARB is not realistic and could result in mariners retrofitting boats with equipment that is not yet approved as safe for passenger use."

Response 1603.1: CARB staff recognizes that the CMA Tier 4 Feasibility Study¹⁷ indicated that Tier 4 repower or equivalent retrofit in the one CPFV evaluated by the study was challenging, with no fitment found for that vessel with the engine options available at the time the study was conducted in 2019. This does not mean all CPFVs cannot repower or that additional new Tier 4 marine engines in power subcategories under 600 kW will not become available in the near future.

Also see Response 1.7 et al. regarding 15-day changes.

Comment 1615.2: "CARB further has received documentation from marine engine manufacturers in September of 2020 that the engines do not exist for commercial fishing and CPFV, and they do not intend to manufacture them for California. The California Maritime Academy informed CARB that the technology does not exist for CFV or CPFV and if it did it would create vessel stability and heat issues creating life health and safety concerns for passengers and crews."

Response 1615.2: See Response to Comment 1615-1 in Response to Comments on the Draft EA, and Responses 1.7 et al. regarding 15-day changes and 1603.1 regarding feasibility.

Comment 1643.3: "The California Air Resources Board (CARB) has proposed costly engine emission regulations that require technology that has not been developed or tested safe on passenger harbor crafts. Similar technology used on trucks and farm equipment has been known to stall engines for hours at a time to clean emission control systems, and in worst case scenarios, catch fire. On land, a stalled engine or fire is a serious economic disruption; at sea, it is life threatening to both passengers and crew."

Response 1643.3: CARB staff made no changes to the Regulation Order in response to this comment. See Response to Comment 1643-1 in the Response to Comments on the Draft EA.

Comment 1647.1: "The California State Maritime Academy concluded in a report commissioned by CARB that the proposed emission standards cannot be achieved because Tier Four engines do not exist for use on harborcraft vessels. Furthermore, the size and weight of the proposed diesel particulate filters (DPFs) would make sportfishing vessels unstable, posing significant safety concerns for passengers and crew. Operational issues with the DPFs could result in unexpected equipment failure when the boats are out at sea with passengers. Rather than trying to find a reasonable alternative afforded to other vessel

¹⁷ Cal Maritime, Evaluation of the Feasibility and Costs of Installing Tier 4 Engines and Retrofit Exhaust Aftertreatment on In-Use Commercial Harbor Craft, September 30, 2019, last accessed July 16, 2021, <https://ww2.arb.ca.gov/sites/default/files/2019-10/cmafeasibilityreport09302019.pdf>.

categories, CARB responded by stating that boat operators should purchase new vessels when it is not possible to reconstruct boat hulls to accommodate the new engines and DPFs. As a result, in just 18 short months from when the regulations are scheduled to be implemented later this year, the vast majority of sportfishing and whale watching vessels will have to be taken out of service as vessels made of wood and fiberglass cannot be modified as steel hulls can. Vessels that can be modified will incur a significant cost for retrofit and will be faced with the potential safety issues noted above.

Boat owners also have serious reservations about a host of unresolved safety concerns that extend beyond the stability of reconstructed boat hulls. Engines equipped with DPFs have not been thoroughly tested at sea. It is common for DPFs used on farm equipment and trucks to experience blockage, creating significant heat and severe back pressure on engines, sometimes taking hours to clear exhaust systems and restart engines. While this circumstance is manageable on land, under the best-case scenario, passengers could be adrift at sea for hours as boat crews try to recover the system. The more likely scenario will result in sea rescues due to engine failure. In a surprising omission, CARB has not solicited the input of the United States Coast Guard which regulates the safety of commercial passenger vessels.”

Response 1647.1: See Response 1.7 et al. regarding 15-day changes, and the Responses to Comments 1647-1, 1647-2, 1647-3, and Master Response 1 in the Response to Comments on the Draft EA.

Comment 2358.2: “Vessels often enter and exit harbors that are difficult to navigate, especially during high winds and seas. If a vessel were to stall in a harbor or near shore, the threat of running aground or colliding with another vessel is a very real and an unacceptable possibility. Rather than hours, crews could have only minutes or seconds to regain control of their vessel. In San Diego, well known as a Navy and Coast Guard town, we have heavy traffic of naval war ships coming in and out of the harbor alongside commercial and leisure harbor craft. Therefore, it concerns us greatly that CARB did not initially consult the Coast Guard when drafting the regulations.

CARB has concluded that the proposed regulations are not compatible with some vessels, specifically stating that “vessel replacement will be likely, especially the categories with wood or fiberglass vessels.” When more than 80 percent of vessels are constructed with these materials, there is a strong possibility that many sportfishing, harbor tour, and whale watching boat owners will go out of business. Moreover, the Cal Maritime Academy raised concerns associated with boat stability, which could have the practical effect of removing metal boats from service as well.”

Response 2358.2: See Response 1.7 et al. for information on an additional extension for CPFVs, and Master Response 1 in the Response to Comments on the Draft EA. For information on flexibility offered for other vessel sectors, see Response 3158.1 et al. for information on other flexibilities included in the 2022 Amendments.

Comment 2386: “I'm a 20 year employee for Cummins Sales and Service North America. I have worked on several projects and prototype engine systems designed to reduce emissions. Cummins emission reduction technology has revolutionized the diesel engine industry. For a time the only diesel engine approved for sale in the state of California was a

Cummins engine. Cummins has made a huge capital investment in clean diesel technology and we continue to develop this technology today. Cummins development of the high pressure common rail fuel system revolutionized the diesel engine. Not only did it reduce emissions. It increased fuel efficiency. This technology did not come without a price. Hundreds of millions of dollars have been spent perfecting this technology. This has not detoured Cummins from continued development of ways to reduce emissions. The point with all this Cummins has made a commitment to develop not only on highway but marine propulsion systems that will benefit our environment and enrich the lives of mankind. We have just begun development on a hybrid marine propulsion system which will help address CARB's concerns. Please withhold the application of the proposed standards until the needed technology is perfected and developed for the marine application. Unlike on highway a marine vessels do not lend to themselves to easily adapt the current technology. Dry stacks is the only way to apply a dpf and urea injection exhaust systems. Wet exhaust will create too much back pressure for a dpf to be adapted to a wet stacked marine engine. Unfortunately to adapt the current technology would require extensive engineering and because of this it would not be economically viable to adapt this technology to most vessels. Here at Cummins we again have made a huge capital investment to address the needs of the marine industry with regards to reducing emissions. We intend to be the first that has a viable marine exhaust after treatment system that can be adapted to current marine applications. Again I ask on behalf of all the principles that will be affected to withhold the implementation of your standards until current technology has been perfected for the marine industry."

Response 2386: CARB staff made no changes to the Regulation Order in response to this comment. Thank you for your comments on Cummins' product line and developing technologies. As explained in the Staff Report, this rulemaking must move forward as soon as possible to attain significant near-term emissions reductions from the CHC sectors. The 2022 Amendments will provide market opportunities for OEMs and Verified Diesel Emission Control Strategy (VDECS) manufacturers to advance and innovate technology to develop compliance strategies to achieve the needed emission reductions.

Comment 2472.1: "While I do agree and support CARB's mission of improving air quality, this uncompromising approach of requiring TIER 4 engines on CFPVs for the following reasons.

1. TIER 4 engines are unavailable for my size boat. There is not a TIER 4 engine in existence that will fit inside a vessel of my size. CARB acknowledges this, yet still is proposing that we be required to put a piece of technology that doesn't exist in our vessels
2. TIER 4 engines that do exist in other capacities are extremely dangerous. These engines produce exhaust gases in excess of 1500 degrees. The fire hazards are extremely high. We have seen the consequences of a fire on a small wooden boat with the recent conception tragedy. If TIER 4 engines are implemented risk of tragedies like the Conception will increase dramatically. In addition, the menu one control technology is very unreliable. This isn't acceptable 100 miles out at sea. There are times where my passengers and crews' lives are relying on our propulsion to keep us safe. If CARB does implement this rule the board members will have to live with themselves if a tragedy is related to the use of this TIER 4

technology. Business owners faced with the prospect of losing their livelihoods in an effort to comply will put this dangerous technology on their boat.”

Response 2472.1: See Response 1.7 et al. regarding 15-day changes and the Response to Comment 2472-1 in Response to Comments on the Draft EA.

Comment 2548.2: “tier 4 engines are meant to run at high load factors to make the emissions and aftertreatment equipment work properly fishing vessels run at low speed and load factors when fishing or trolling this will lead to 2 things fire at sea or engines going into a limp mode when the emission control equipment malfunctions lets think about this if bad weather comes up and you're coming home and the engines go to limp mode then you have a boat load of people in danger

bottom line I have been in the engine business for 30 years these engine are nothing but trouble in the on road equipment they will be even more problematic in the marine industry these facts above are based on industry experience I have attended some of these online meetings I was curious if any of the carb staff has any diesel engine background I have not seen any practical application reviews of these engines in this type of vessel thank you for your time in considering my comments Mike Doherty Marine Engine Service Inc.”

Response 2548.2: CARB staff made no changes to the Regulation Order in response to this comment. Active aftertreatment thermal control strategies will function when required regardless of lower average engine load factors.

Also see Response to Comment 2548-1 in Response to Comments on the Draft EA.

Comment 2594.2: “The proposed regulations require me to install marine engines that have not been designed or tested yet, because the application is not practical or safe. A tier 3 engine or tier 4 engine with the new exhaust system with DEF would run so hot that there would almost certainly be a fire in the engine room. Our fiberglass boats are made with polyester resin, which is flammable. I'm not a scientist but I'm sure that my boat would be at risk of fire at sea with passengers onboard. That's assuming the coast guard would approve the changes.”

Response 2594.2: CARB staff made no changes to the Regulation Order in response to this comment. See Response to Comment 2594-1 in the Response to Comments on the Draft EA.

Comment 2602.2: “With respect to existing CHC vessels, CARB claims that there are a number of pathways to compliance, but, in actuality, most of those pathways appear to lead to a mandate to “comply by vessel replacement.” That result seems largely preordained, since Tier 4 repowers and/or DPF retrofits likely are not feasible for many in-use CHC vessels, given space constraints, safety issues (including those relating to DPF regenerations and surface temperatures), and product availability concerns. In addition, no CARB-verified Level 3 DPFs that are suitable for use with commercial marine engines are currently available. CARB staff has estimated that only 15% of the covered CHC vessels will need to be replaced under the proposed amendments, but that percentage figure seems unreasonably and unrealistically low.”

Response 2602.2: CARB staff made no changes to the Regulation Order in response to this comment. CARB staff recognizes that the in-use CHC inventory is technologically diverse with many vessel types and unique designs that must be evaluated on a case-by-case basis for feasibility for various compliance pathways by reviewing multiple engine and or aftertreatment retrofit technology options that will be continually evolving in the future. This comment raises generalized concerns but does not provide specific data or detail on any particular vessel sectors or specific vessels to support claims of vessel replacement being “preordained.” Therefore, CARB staff cannot provide a specific response to this comment.

Regarding safety concerns, see Master Response 1 in the Response to Comments on the Draft EA.

While feasibility must be determined on a case-by-case basis for each vessel, CARB staff acknowledges that in-use vessels working in CHC sectors and subcategories such as Subchapter-T or Subchapter-K high-speed catamaran ferries, some Subchapter-T passenger vessels in the CPFV sector, Subchapter-M ocean going tugboats with tonnage restrictions, and some special use workboats may have particularly challenging fitment with currently available engine and aftertreatment technologies. However, Appendix E of the ISOR Staff Report demonstrates that manufacturers are, or are planning to, manufacture the technology needed for vessels to comply with the CHC Amendments. Additionally, a number of European engine OEMs are currently pursuing U.S. EPA Tier 4 certification to sell European (EU) Stage V marine engines in California and CARB is aware of a number of retrofit aftertreatment OEMs currently pursuing CARB Level III Marine DPF Verifications and that are committed to supporting additional technology development to provide CHC operators with in-use vessels additional compliance pathways.

Please see Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies - Chapter IV.

Regarding product availability concerns, CARB staff has included provisions for renewable extensions in the Regulation Order for technology availability. This will provide eligible vessel owners more time to meet the required performance standards, and for engine and aftertreatment OEMs to further develop and transfer existing technologies in other operational sectors into the marine sector. Ultimately CARB staff expects this will provide a greater number of compliant engine options in a wider range of power subcategories and will reduce the number of vessels that will need to be replaced for compliance. See Response 3158.1 et al. for further detail.

Additionally, CARB’s Board Members have requested CARB staff to establish a technical work group to assess the commercial availability of lower-emitting combustion engines and zero-emission technology for all categories of harbor craft reporting to the Board biennially beginning Dec. 31, 2024. CARB Board Members have also directed staff to complete a mid-term review on the requirements in the CPFV sector reporting back to the Board in 2028.

Comment 2602.4: “During prior meetings with CARB and USCG representatives, the Coast Guard representatives raised a number of key points that CARB staff have not addressed adequately. More specifically, USCG personnel noted that they will need to review the

design specifications for any modifications that vessel owners propose to make to the exhaust systems of their in-use vessels to comply with the revised CHC regulations. In that regard, USCG personnel will need to assess and approve any exhaust-system redesign features that impact surface temperatures, air handling, auxiliary loads, heat-rejection systems, safety, fire protection, vessel balance and stability, as well as vessel weight and displacement, especially if any machinery spaces or bulkheads are relocated, or if other structural changes are involved. To the extent that fiberglass-hull vessels are involved, additional concerns will come into play. The necessary USCG approvals will need to be made on a case-by-case bases, and any approved redesigns, once completed, will need to be verified by local USCG inspection officers. CARB's proposed regulatory amendments will need to (but as yet do not) account fully for the Coast Guard's critical role, which, in essence, will make the retrofitting of in-use vessels that much more difficult and expensive.

In light of the foregoing, CARB should be more transparent regarding the fact that its revised CHC regulations are likely to lead, as a practical matter, to a requirement for the replacement of the majority of the covered in-use CHCs (not just 15 percent) with new CHC vessels powered by unique Tier 4-plus systems within the next 10 years. The actual costs of that actual regulatory mandate will be massive."

Response 2602.4: No change was made to the 2022 Amendments in response to this comment. The 2022 Amendments clearly state, in 17 CCR § 93118.5(b), that "nothing in this section shall be construed to amend, repeal, modify, or change in any way any other applicable State, USCG, or other federal requirements. Any person subject to this section shall be responsible for ensuring compliance with both USCG regulations and the requirements of this section and any other applicable State and federal requirements.

The USCG will therefore not have a direct role in implementing the CHC 2022 Amendments, but will need to verify that "marinized" off-road engines are properly installed into CHC prior to issuing a vessel a USCG certification to operate in revenue service. Such vessel verifications include considerations of vessel stability, trim characteristics, buoyancy, and vessel structural design limits, fire protection requirements, and engine exhaust pipe and engine exhaust cooling requirements. (Appendix E to ISOR, pp E-11 and E-44 to E-45.)

Also see Response 810.1 regarding the 15-day change for CPFV, which CARB staff expects will result in fewer vessel replacements overall since the majority of vessel replacements under the original proposal were anticipated to be CPFV due to their wood and fiberglass construction. CARB staff disagrees that replacement of the majority of covered in-use CHCs would be required due to the multiple options for compliance extensions, ZEAT credits and ACE plans (see Response 3158.1 et al.).

Comment 2602.7: "CARB also needs to evaluate and explain more fully the risks of whether the proposed regulations will result in a lack of compliant marine engines available in California for CHC vessels, since the proposed revisions to the CHC regulations would force OEMs to manufacture unique marine engines and aftertreatment systems solely for the California CHC market. That market is simply not large enough to justify or sustain a separate and unique marine engine product line."

Response 2602.7: No changes were made to the Regulation Order in response to this comment. See Response 2602.2 regarding feasibility and availability of equipment.

Comment 2696: "The proposed regulation would not provide the power (hp) we need to do our job. The modifications to our specific boats would be more costly than purchasing new boats. The lack of power is the main concern. If my boats can't tug broken down vessels then we have a huge concern for the safety of over 700,000 boats that require assistance each year from towing companies. Please save our jobs and come down to our boats and see what we do before making crucial decisions that effect millions of people negatively."

Response 2696: CARB staff made no changes to the Regulation Order in response to this comment. CARB staff points out that this comment does not provide any supporting data that properly specified, installed, and maintained Tier 4 marine engines or engine aftertreatment technologies required for compliance would lower engine power. CARB staff contends that there are numerous Tier 4 engines in a wide range of power subcategories, and that properly maintained SCR and DPF aftertreatment devices installed in correct applications that do not cause engine exhaust backpressures to exceed the applicable engine OEM's specifications for maximum backpressure will not decrease the engine power output below the rated engine hp. USCG requirements outline that DPFs or any other engine aftertreatment must not exceed the applicable engine OEMs' maximum engine backpressure specifications.

Also see Response to Comment 696-3 in the Response to Comments on the Draft EA.

Comment 2877.2: "1) There are no Tier 4 engine under manufacture that will fit into the current compartment of the vessel. 2) There is no safe place to locate a Diesel Particulate Filter (DPF) on board the vessel. 3) Heat produced by the regeneration process of the DPF is to intense for the wood/fiberglass construction of the vessel. 4) The weight displacement created by a larger Engine/DPF configuration will negatively affect the stability of the vessel. They may not be able to be retrofitted to existing vessels."

Response 2877.2: No changes were made to the Regulation Order in response to this comment. See Response 2602.2 regarding feasibility and availability of equipment and Master Response 1 in the Response to Comments on the Draft EA.

Comment 3009: "My vessel is 65' and will not hold tier 4 motors. I have tier 3 at this time and will be happy to comply to tier 4 when they can be implemented to this size vessel. My USCG ratings are impeccable. I do appreciate what your program is trying to do and agree that some vessels are big polluters. Change is necessary. Please, just come up with something that works and I will be happy to comply."

Response 3009: No changes were made to the Regulation Order in response to this comment. See Response 2602.2 regarding feasibility and availability of equipment.

Comment 3018: "Your proposed engine and boat upgrades for sport fishing boats are merely a means to kill the industry. These small time, family owned commercial boats cannot be upgraded with bigger tier 4 engines, which do not currently exist. The wooden and fiberglass boats will catch on fire due to the heat generated by tier 4 engines. Your proposed solution, buying new and bigger boats, is not economically feasible. Two of your other

proposals are pure pie in the sky nonsense, battery power or hydrogen. They don't exist and are unsuitable for boating. Current mid sized boats don't even use propane. It is too risky and hydrogen will be worse. Lithium ion batteries have the same problem. If they leak, they burn in air and in water. You can't put out a lithium ion battery fire. Don't you remember the fire on the Conception dive boat? "

Response 3018: See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns, and Response 1.7 et al. regarding the 15-day change proposed to provide a one-time, ten-year extension option for CPFVs. Additionally, the 2022 Amendments would not require propane fuel in CHC vessels.

CARB staff does remember the Conception dive boat incident and the very regrettable and tragic loss of many lives that occurred that night. CARB staff is also aware that the Conception was not a hybrid diesel-electric vessel or a battery-electric vessel with a propulsion-related onboard lithium-ion battery energy storage system (ESS) and associated electric-drive propulsion system. CARB staff is also aware that the report on the incident indicated there was no way to determine the exact cause of the ignition source due to the extent of the fire damage and the subsequent sinking of the vessel and that there were other extenuating vessel design and incidental circumstances that night that may have contributed greatly to the tragic loss of life.

Comment 3038.3: "The lack of communication between CARB and USCG is unacceptable. We cannot change anything on our vessels without USCG approval, therefore we cannot put in engines or other equipment without their oversight for safety as we are passenger carrying vessels. I'm sure you can appreciate my concern here after the Conception disaster. Tier 3 or 4 plus DPF is just not possible for us. The added weight of components will not fit and will affect stability of the vessels. It will also change our passenger capacity due to added weight further increasing the cost to the public. CARB has stated they are aware and said we will just have to replace all 174 CPFV s in the fleet with steel vessels. Why? Because the proposed equipment runs so hot it isn't safe for use in wood or fiberglass vessels, and the expansion & contraction will break the welds on aluminum boats too. The diesel particulate filters they want us to use are notorious for clogging. For a truck, its most likely no big deal, pull over get out and wait for a tow. If that were to happen on a Passenger vessel, it would leave us dead in the water. What if that happened mid shipping channel crossing with weather picking up, or touring the painted cave at the Channel Islands, entering/exiting the harbor? Even worse, when these filters clog and the engine does not automatically shut off, they can overheat, catch fire, and explode. This has the potential to make the Conception incident seem commonplace."

Response 3038.3: See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

CARB staff is aware of the Conception dive boat incident and the very regrettable and tragic loss of many lives that occurred that night. CARB staff is also aware that the Conception vessel was not equipped with DPFs. CARB staff is also aware that the report on the incident indicated there was no way to determine the exact cause of the ignition source due to the extent of the fire damage and the subsequent sinking of the vessel and that there were other

extenuating vessel design and incidental circumstances that night that may have contributed greatly to the tragic loss of life.

Many of the wooden or fiberglass reinforced plastic hull vessels in CARB's CHC Reporting Database are working in the CPFV sector. See Response 1.7 et al. regarding the 15-day change proposed to provide a one-time, ten-year extension option for CPFVs.

Comment 3038.5: "I would like to mention, when Ms. Bonnie Soriano presented to the Ventura County Board of Supervisors & APCD she repeatedly mentioned the age of our vessels. She tried to say a vessel such as mine which is approaching 50 years old should just be decommissioned anyway. That is akin to saying any home approaching 50 should be torn down. Of course not! We keep our vessels in prime condition, it is not only a point of joy and pride, but we must do so as our passenger's lives depend on it! Our vessels are inspected every year by USCG, and every two years they get hauled out of the water for a more in-depth inspection. I am including pictures of our boats, so you understand what a 50 year old boat really looks like."

Response 3038.5: Thank you for your comment. No changes were made to the Regulation Order in response to this comment. CARB staff recognizes that some CHC can last for many decades of use with proper maintenance and inspections by USCG and that while CARB staff can appreciate the aesthetic appeal of older vessels, the engine emissions from vintage diesel engines should be reduced to levels equivalent to modern CARB-compliant engine designs through either repower or retrofit control strategies. On the other hand, CARB staff is aware of some vessel sectors with hull materials of construction in vocations that do require replacement every 20-25 years. For example, some high-speed aluminum hull catamaran ferries may fatigue their hulls over a 20–25-year useful life. CARB staff understands that this does not apply to all vessel types and that different vessel types may have different lengths of useful life.

Comment 3117.5: "(iv) DPF Technology

At this point, it is highly questionable if DPF technology can be installed with Tier 3 or Tier 4 engines in a technically-feasible or safe manner. Although DPF devices have been used on trucks, albeit with some serious consequences such as fire danger, there is no indication that DPFs can be used on large marine engines, or that it would be safe to do so."

Response 3117.5: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns. See Response 2602.2 regarding feasibility and availability of equipment.

Comment 3118.9: "CARB's proposal to require Tier 4 engines with Diesel Particulate Filters (DPF) on existing vessels is not feasible. Currently, there is little to no marine application of DPF, considerable size and engine space restrictions exist, and back pressure created by DPF on an engine exhaust system is intolerable for the safe operation of existing and known future engines. There is currently no manufacturer-approved DPF available for the engines commonly used on towing vessels, so operators cannot determine the utility of DPF on their vessels. CARB is proposing to require technology that is untested, unproven, and simply unavailable.

In previous letters to the docket, AWO has provided specific examples of more appropriate timelines for the implementation of new technology standards, such as delaying the implementation date for any DPF rules by a minimum of five years after the approval of a compliant Tier 4 with DPF engine and allowing compliance flexibility for vessels with either a Tier 3 engine with a DPF or a Tier 4 engine without a DPF. These suggestions have gone unheeded, and we are troubled that CARB has not acknowledged that there is no available technology that currently meets both the performance standards of the proposed regulation and the propulsion needs of the regulated population of towing vessels.

In sum, CARB has failed to provide realistic relief for vessels that cannot comply with the proposed rules due to space or feasibility constraints. Under the current proposal, a vessel operator has no recourse other than to retire a vessel that cannot physically accommodate the installation of unproven and unavailable technology.”

Response 3118.9: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments and Response 3118.6 regarding cost and feasibility.

Comment 3119.4: “Green harbor craft technology is nascent and much of it untested for pilot vessel application. Forced adoption of early technologies into a 20+ year asset creates safety and reliability concerns and precludes the use of technologies that may be developed in the near future.”

Response 3119.4: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

This comment does not provide specific detail for CARB staff to respond to. The 2022 Amendments would not mandate zero-emission technologies for pilot vessels. CARB staff expects some current pilot vessel designs and all newly constructed pilot vessels would be feasible to utilize Tier 4 marine diesel engines retrofit with DPFs or OEM engines with DPFs or full exhaust aftertreatment in the near future.

Comment 3121.5: “The technical solutions offered by the rule are infeasible and overly prescriptive. They pick winners and losers in the commercial marketplace and fail to allow vessel operators to innovate and find creative solutions to achieve emission reduction targets. AmNav supports CARB’s goal of reducing emissions in California, but this rule would force operators down a technical path that is untested, unproven, and may not be the only avenue to achieve the desired emissions reductions.”

Response 3121.5: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments and Response 3118.6 regarding cost and feasibility.

Comment 3121.6: “This rule puts living wage jobs and the lives of our mariners at risk. Attempting to install or operate unproven technology in the marine environment is filled with risk. Unlike trucks and off-road applications, our mariners cannot just pull over to the side of the road and call the fire department. *Unproven technology has no place in maritime applications.*”

Response 3121.6: No changes were made to the Regulation Order in response to this comment. See Response 3118.6 regarding cost and feasibility and Master Response 1 in the Response to Comments on the Draft EA.

Comment 3121.10 & 3121.21: "CARB'S PROPOSAL IS TECHNICALLY INFEASIBLE

In its April 30, 2020 letter, AWO submitted an Engineering Review Summary performed by Jensen Naval Architects on the Marine Engineers of the Cal Maritime Tier 4 Feasibility study with which CARB supports its assertion that the proposed regulations are feasible for CHC operators. The Cal Maritime study evaluated four DPF retrofit scenarios for a single ship assist and escort tug. The Jensen Review Summary also demonstrates the feasibility of DPF retrofit using a comparable large towing vessel. While the Cal Maritime study projects a \$2.81 million per vessel cost, the Jensen study finds a larger cost impact – between \$3.7 and \$4.5 million – and makes some important points about the limitations of the Cal Maritime study:

- This study of one large and spacious ship assists and escort tug is not representative of the diverse tug and towing vessel fleet.
- The Jensen Review Summary notes "the technical challenges of repowering with EPA Tier 4 engines could be significant and cost prohibitive for some ship assist and escort tugs."
- The Jensen Review notes that size constraints on some tugs could entirely preclude the placement of aftertreatment systems required by CARB.

CARB's proposal to combine Tier 3 or Tier 4 engines with DPF aftertreatment technology is unproven, unavailable, and technically infeasible. Size and weight constraints make re-powering and retrofit options impossible for many tug and towing vessels, but even if a vessel had the necessary space to accommodate this technology, there is no available DPF aftertreatment product on the market. The absence of commercially available technology has limited the guidance that engine manufacturers can provide about potential paths to compliance. Additionally, the absence of compliant technology makes planning future capital investment impossible. No matter how carefully a CHC operator has planned out the service life and maintenance schedule of a given vessel, the impact of this proposed rule with its unknowable compliance price-tag cannot be accounted for.

CARB must acknowledge that there is no available technology that currently meets both the performance standards of the proposed regulation and the propulsion needs of the regulated population of tug and towing vessels. CARB must provide realistic relief for vessels that cannot comply with its rules based on space or feasibility constraints. As the draft rule stands now, AmNav will be forced to spend tens of millions of dollars on unproven and potentially dangerous retrofits on vessels that have only recently been repowered to meet the last iteration of the CHC regulations. In the most egregious case, AmNav has vessels that have just been delivered or it will take delivery off that will be forced to be retrofitted just a few short years after they are first put into service. The financial waste caused by this proposal is staggering and raises the question of whether CARB is legally "taking" property from vessel operators by devaluing fully operational equipment that meets federal standards through state regulation.

CARB must consider providing vessel operators a feasible path to reducing stack emissions from CHCs. This path must include less prescriptive means of achieving emission reductions and longer-lasting exemptions for vessels that cannot feasibly retrofit.”

Response 3121.10 et al.: No changes were made to the Regulation Order in response to this comment. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments, Response 3118.6 regarding feasibility, Response 2602.2 regarding feasibility and availability of equipment, and see Response to Comment 3121-4 in the Response to Comments on the Draft EA.

CARB CHC Program staff observed from reviewing AWO’s April 30, 2020 letter attachment¹⁸ (referred to above in the comment) detailing the Valor tug’s repower that Jensen’s Tier 4 repower installation, DEF tank design, and additional maintenance and work specifications completed on the vessel with the engines removed exceeded those outlined in the 2019 CMA Tier 4 Feasibility Study harbor tug repower evaluation. While Jensen’s robust work specifications and using a different shipyard to do the work may account for some of the cost disparity, it was apparent to CARB staff that the vessel in question was able to successfully repower from Tier 1 to Tier 4 as indicated by the harbor tug evaluation in the CMA Study.

CARB disagrees with the commenter's assertion that this rulemaking action constitutes a regulatory taking of commenter’s private property rights. As a threshold matter, CARB notes that the commenter has not specified which of its property rights are allegedly infringed by this rulemaking action, and is therefore providing this response under the assumption that the commenter is alleging that this rulemaking is impairing its property rights associated with its existing fleet of CHC.

The "Takings Clause" of the Fifth Amendment to the United States Constitution prohibits the federal government from taking private property for public use, without just compensation. This prohibition extends to states by the Fourteenth Amendment to the United States Constitution.¹⁹

Governmental regulatory actions that require an owner to suffer permanent physical invasions of his or her property, or that completely deprive an owner of all economically beneficial use of his or her property will generally be deemed *per se* takings for Fifth Amendment purposes. *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 538 (2005).

Courts evaluate whether regulatory actions that extend beyond the above-mentioned categories and the special context of land-use exactions constitute regulatory takings using the standards set forth in *Penn Central Transp. Co. v. New York City*, 438 U.S. 104 (1978) (*Penn Central*). In that case, the United States Supreme Court identified factors that courts must consider in evaluating whether a regulatory taking has occurred, including the regulation's economic impact on the claimant, “the extent to which the regulation has

¹⁸ The American Waterways Operators comment letter to David Quiros (CARB) dated April 30, 2020, referenced in Appendix A of the SRIA.

¹⁹ The Supreme Court applied the Takings Clause of the Fifth Amendment to the States through the Fourteenth Amendment Due Process Clause in *Chicago Burlington and Quincy R.R. v. City of Chicago*, 166 U.S. 226 (1897).

interfered with distinct investment-backed expectations”, *Lingle*, 544 U.S. 528, 539 (quoting 438 U.S. 104, 124), and the character of the governmental action – i.e., “whether it amounts to a physical invasion or instead merely affects property interests through “some public program adjusting the benefits and burdens of economic life to promote the common good.” 544 U.S. 528, 539 (quoting 438 U.S. 104, 124). The *Lingle* court further stated that each of the above-mentioned inquiries “aims to identify regulatory actions that are functionally equivalent to the classic taking in which government directly appropriates private property or ousts the owner from his domain. Accordingly, each of these tests focuses directly upon the severity of the burden that government imposes upon private property rights.” 544 U.S. 528, 539.

In accordance with the above-mentioned Supreme Court decisions, it is clear that this rulemaking action cannot be considered a regulatory taking of the commenter’s property rights. This rulemaking does not affect a *per se* taking because it neither causes the commenter to suffer a permanent physical invasion of its existing CHC nor completely deprives the commenter of all economically beneficial use of said vessels. This is apparent because the rulemaking only establishes requirements for CHC that operate in RCW, and even as to such affected CHC, the rulemaking provides owners and operators compliance flexibilities, such as the low use exemption, that allow limited operation of non-compliant CHC that meet specified criteria. It is also clear that the commenter cannot establish that the rulemaking has interfered with its investment-based expectations because tugboats have been subject to the CHC regulation since 2008. Finally, the character of the rulemaking action is a governmental program permissibly adjusts economic benefits and burdens to promote the public health and welfare.

In *Maritrans, Inc. v. United States*, 342 F.3d 1344 (Fed. Cir. 2003) (*Maritrans*), an owner of single hull tank vessels sought compensation from the U.S. government, alleging that the enactment of a federal statute requiring existing single hull tank barges to be retrofitted with double hulls in order to operate on navigable waters or waters subject to the U.S. Exclusive Economic Zone (Oil Pollution Act of 1990, OP90) constituted a taking of private property requiring compensation pursuant to the Takings Clause of the U.S. Constitution. The Court of Federal Claims held that with respect to eight vessels (comprising vessels that had been retrofitted with double hulls, sold, or involved in a collision leading to receipt of insurance proceeds)²⁰, the OP90 neither resulted in a categorical nor a regulatory taking of the vessels requiring the government to compensate the owner.²¹ On appeal, the U.S. Court of Appeals for the Federal Circuit affirmed.

The *Maritrans* court first found that the owner had cognizable property interests in its existing tank barges,²² but determined that the OP90 did not effect a categorical taking because OP90 merely limited the owner’s preexisting right to use the vessels but did not deprive the owner of “100% of the beneficial uses of its barges.”²³ The *Maritrans* court noted

²⁰ *Maritrans*, 342 F.3d 1344, 1349 (Fed. Cir. 2003)

²¹ *Id.* at 1350

²² *Id.* at 1353

²³ *Id.* at 1354

that Congress provided owners the option to retrofit vessels to allow the continued use of such vessels, and noted that “[a]lthough this option imposes substantial costs, [owner] has not established that retrofitting is not viable for any of its vessels. The fact that [owner’s] return on its investment may now be less than it originally expected is not enough to make Congress’ enactment of OP90 a compensable taking.”²⁴

The *Maritrans* court then determined that OP90 did not effect a regulatory taking. The court first found that the character of the governmental action underlying adoption of the OP90 was to implement a permissible goal of preventing oil spills in navigable waters that would result in damaging pollution,²⁵ and that the owner was not the sole company subject to OP90. Rather, OP90 “applied uniformly across the oil transport industry.”²⁶

The court then assessed the economic impact of OP90 on the owner, noted that the Court of Federal Claims’ found that OP90 caused the fair market value of the subject vessels to decline 13.1 percent, and stated that the owner failed to show that the lower court’s findings were clearly erroneous.²⁷

The court affirmed the Court of Federal Claims’ finding that the owner did establish that it had a reasonable, investment backed expectation (when it purchased the vessels) that the vessels would be free from the regulatory conditions of OP90. This finding was based on testimony from USCG officials indicating it had no plans to require single hull vessels to retrofit to double hulls.²⁸ However, the court noted that factor was not sufficient to overturn the Court of Federal Claims’ other two above findings that supported the holding that OP90 did not effect a regulatory taking of the eight vessels at issue.²⁹

Assuming, arguendo, that commenter has a cognizable property interest in its existing fleet of tugboats, the reasoning used by *Maritrans* court fully supports a conclusion that the 2022 Amendments do not effect either a categorical or a regulatory taking. The Amendments do not deprive the commenter of “100% of the beneficial uses” of its vessels, since they do not restrict the commenter’s use of its existing fleet of vessels outside of RCW and provide the commenter the option to retrofit its vessels in order to continue operating such vessels in RCW. The 2022 CHC Amendments clearly constitute an environmental regulation that is intended to limit emissions of harmful air pollutants from CHC and that allocates the requirements and burdens across an entire industry, rather than on a single company. Moreover, unlike the vessel owner in *Maritrans*, the commenter cannot proffer evidence that it has a reasonable investment backed expectation that tugboats would not be subject to the CHC regulation, especially since CARB had first subjected tugboats to the CHC in-use requirements in 2008. Consequently, the reasoning used by the *Maritrans* court supports a determination that the 2022 CHC Amendments do not constitute a compensable taking.

²⁴ Id. at 1354-1355.

²⁵ Id. at 1357.

²⁶ Ibid.

²⁷ Id. at 1358.

²⁸ Id. at 1358-1359.

²⁹ Id. at 1359.

Comment 3121.18: “The technical solutions offered by the rule are infeasible and overly prescriptive. They pick winners and losers in the commercial marketplace and fail to allow vessel operators to innovate and find creative solutions to achieve emission reduction targets. AmNav supports CARB’s goal of reducing emissions in California, but this rule would force operators down a technical path that is untested, unproven, and may not be the only avenue to achieve the desired emissions reductions.”

Response 3121.18: No changes were made to the Regulation Order in response to this comment. See Response 3158.1 et al. regarding compliance pathways such as the ACE plan that provide flexibility, creativity, and innovation to reduce emissions. See Response 1094.1 et al. regarding a biennial technology and implementation review to track the advancement of technology in the marine sector.

Comment 3121.23: “Marine Harbor Craft applications are unlike the shore-based power installations that CARB draws parallels in justifying the requirement for DPFs. Specifically stating that DPFs are “widely commercialized and proven technology on light-duty and heavy-duty equipment that has been used on road, off-road and in port applications.” The evidence contradicts this comparison. Concern is that to date there has been little marine application of DPFs. The size of our engines and available space for installation makes a DPF installation extremely difficult. The back pressure created by a DPF on the exhaust system may exceed the tolerances of many of our existing or future engines to properly operate. Many if not all our vessels currently have no OEM approved DPF available for the engines. Until one is available, and its characteristics defined, we cannot begin the process of determining if it is feasible to operate with a DPF.

The application of DPFs will also have to consider that the duty cycle of a marine vessel, is unlike that of on-road, off-road or port application equipment. As noted in CARB’s proposed concepts “escort and harbor assist tugs have a highly variable duty cycles operating with relatively larger engines but lower average loads . . .” Additionally, our vessels also use their engines as the primary mode of braking and often maneuvering. Doing so requires the rapid acceleration and deceleration of the engines. Operators do not have the luxury of shore-based equipment that can maintain a much more moderate increase of power through multi-ratio transmissions and the gradual application of fuel. On vessels, power is often needed immediately to avoid collision, allision or losing propulsion. Overloading the propeller and stalling the engine is a real risk when maneuvering in tight quarters. For this reason, the manufacturer provided fuel curves must be very dynamic, considering the variable nature of the load requirements of the engines. This variable engine loading is exactly the situation that has caused many of the issues, including fire and premature failure, that other industries have experienced when they attempted to incorporate the use of DPFs.

The process of repowering or modifying the propulsion or power generation plants of a marine harbor craft takes years to plan, obtain regulatory approval and execute. The planning and engineering must begin years prior to commencing the work and even relatively simple changes must be evaluated against the impact to the vessel’s stability, maneuverability, available space and watertight integrity. Each component’s specifications, characteristics and operating parameters must be known far enough in advance to ensure a thorough design review and engineering process that can take place. Engineering can take

from 3 to 9 months depending on the complexity of the project. Many projects will also require the approval from the vessel's Class Society or the USCG, which can add months to the timeline. It can then take an additional 3 to 6 months to identify a shipyard and negotiate a contract for the modifications. When you add this up, the process must begin years before the work is to be done, and the process can only begin when all the equipment that is to be used has been approved and accepted for the purpose.

The costs identified in the California Maritime Academy report do not reflect the entire financial impact of performing these modifications. With only a few tugs in our regional fleets, losing a single vessel has significant economic impact either in lost revenue or in the cost of sourcing a temporary replacement tug. While each situation is unique a conservative cost would run well above \$5,000 per day. With a conversion from Tier 2 to Tier 4 engines taking upwards of 2 months the cost the company will endure will be 100's of thousands not captured in the CMA report. To minimize the downtime, our engineering teams will generally begin the process years in advance, with work timed to ensure the modifications can be completed during one of the vessel's scheduled yard or other planned maintenance periods.

With all these challenges in mind, we encourage CARB to consider modifying their proposed rules as follows:

- *Expanding the implementation dates to better recognize the investment owners have already made to comply with previous regulations, we would ask CARB to adjust their implementation dates to allow any engine that is currently in compliance to be able to operate at least 20 years from the date it went into service without modification. For instance, AmNav has a new vessel currently under construction that under the current proposal will be required to have DPFs installed by 2028, less than 8 years after it was built. A modification that was not foreseen during the design and planning stage of the vessel.*
- *Additionally, any engine modified to comply with the current regulation should be allowed 15 years at a minimum, from the date it was modified, before being compelled to comply with the new CHCR.*
- *Delay the implementation date for installation of a Diesel Particulate Filter (DPF) to 5 years after a model approved by both the manufacturer and appropriate regulatory authority is available. Only when the exact characteristics and specifications of a DPF are known can a company begin the engineering and planning necessary to determine if the project is feasible and then schedule a time to do the work.*
- *Tugs where it proves infeasible to install a Tier 4 engine and a DPF will be considered in compliance if they are Tier 3, with a DPF.*
- *Company's should be afforded the ability to defer projects in one-year increments beyond the implementation date to avoid having to manage multiple projects in the same year."*

Response 3121.23: No changes were made to the Regulation Order in response to this comment. CARB staff in the CHC Program have not received any data supporting claims that diesel engine applications with variable duty cycles cause premature component failures and fires. See Response 3158.1 et al. for information on flexibilities included in the 2022 Amendments and see Master Response 1 in the Response to Comments on the Draft EA.

The changes recommended by the commenter would delay much needed emission reductions from harbor craft and harm the public health of coastal communities affected by emissions at ports, marinas, and harbors

Comment 3121.24: "Concept III: More Stringent Requirements for New-Build Vessels

New-Build construction allows us to overcome many of the hurdles present in the conversion of an existing vessel. However, new builds are not without their challenges. Most notably, a new build program is part of a company's long-term strategic plan, designed to meet their customers' needs and remaining competitive in the market. Vessel designs are completed years in advance, with the actual construction process taking more than a year to complete. Most build programs involve the delivery of multiple vessels allowing the owner to take advantage of the lower cost series construction and reduced operating costs associated with having a homogenous fleet. Common spare parts, similar repair procedures and common operating characteristics all helps to make an operation more efficient. Changing vessel plans in the middle of a build program can be costly and disruptive to the company's ability to successfully compete. As stated in the concept document, CARB's vision is that "New build vessels can be designed around the cleanest available equipment and present the best opportunity for cost-effectively reducing emissions from harbor craft in California." If owners are expected to meet this vision, we would ask that they be given the time necessary to incorporate the final rule into a well thought out build strategy.

To do this we would encourage CARB to consider the following comments/recommendations to their proposed concepts:

- *Set the implementation for the requirement to install a Diesel Particulate Filter (DPF) to 5 years after a model approved by both the manufacturer and appropriate regulatory authority is available. Only when the exact characteristics and specifications of a DPF are known can a company begin the engineering and planning necessary to determine if the project is feasible and then schedule the time to do the work.*
- *Any vessel completed before this point should be allowed to operate 15 years before being asked to re-engineer and add the DPF."*

Response 3121.24: No changes were made to the Regulation Order in response to this comment. CARB CHC Program staff has included provisions in the Regulation order for compliance deadline, extensions, an ACE plan for fleet operator compliance flexibility, and incentives for fleet operators to adopt zero-emission technologies to obtain a ZEAT Credit, (a compliance extension) that can be applied to another diesel-powered vessel in their fleet. See Response 3158.1 et al. for more information.

Comment 3121.28: "Concept VII: Compliance Extensions

While we concur with the need for extensions as it is not only likely but almost certain that there are vessels within the current harbor craft fleet for which it will not be feasible, nor financially sustainable to comply with the new regulations. The challenge will be in defining the very subjective terms of "feasible" and "financial hardship". We offer the following comments.

The determination of what is or is not feasible often bleeds into what is or is not financially viable. In the CMA study they found that it was not feasible to retrofit a SCR and DPF on the representative ship assist tug. However, their conclusion was based on the amount of work that would have been needed to modify the vessel to safely house the systems. Simply put, it would not be practical because the cost would far exceed the value of the modifications.

CARBs intent to assess financial hardship of complying with a regulation, based on the financial health of a company is fundamentally the wrong approach. The effect of such a methodology would be to potentially prop up companies that are struggling financially by allowing them to avoid regulation and gain an economic advantage over companies that are financially sound. Regulators should not be in the position of bailing out companies, but rather they should strive to create an equitable regulatory regime. We would argue that financial hardship should be measured in the impact on an assets ability to compete. If due to the vessel's design or configuration the modification required to comply is so expensive that performing the modification would render the vessel too costly to be profitable then relief should be given in the form of an extension. In order to achieve an equitable measure of both the feasibility and hardship measure we would ask you to consider the following revisions:

- Modifications whose estimates, as verified by a yet to be determined third party or agency, exceeds the High Estimated Cost as offered in the CMA Report, and adjusted for inflation, would be granted an extension.

This would provide a much simpler and more equitable approach to granting extensions and would be very similar to the methodology used in the CMA study."

Response 3121.28: No changes were made to the Regulation Order in response to this comment. CARB staff agrees that a level playing field is important, and through the extension process, CARB staff plans to evaluate third-party evaluation of feasibility, with the intent of not allowing companies to avoid regulation. It is also important to note that the maximum period of feasibility extensions is six to eight years with renewals, therefore all vessel owners would eventually incur final compliance costs.

Comment 3138: "Jacobsen Pilot Service, Inc. has been in business since 1924 and provides the port piloting service for the Port of Long Beach and the Seal Beach Naval Weapons Center. We operate 24/7 and pilot roughly 7,000 ships per year. I am writing to express our serious concern with the agency's proposed revisions to the commercial harbor craft regulations. CARB has proposed engine emissions regulations that require technology that has not been developed or tested to be reliable and safe at sea. Our three pilot boats deliver pilots to inbound ships, and the transfer process out in the open ocean can be dangerous. It is paramount for us to have reliable and safe engines. Our company has been proactive in upgrading engines whenever possible to keep the cleanest available engines possible. Our two newest vessels, which are only one and three years old, were specially designed to reduce weight so we could use smaller cleaner engines. These two boats cost over 4 million each and have a service life of 30 years. We took advantage of carbon fiber technology and utilizing water jet drives. These boats reduce fuel consumption by 33% and reduce NOX by 35%, CO by 55%, CO2 by 37%, and PM by almost 100%. Each of our new boats has two Tier

3 engines rated at 800 HP. Your proposed regulations would phase out our Tier 3 engines in a few years, but unfortunately there is no available engine technology that could replace these engines and fit in our new boats. The current Tier 4 engines would require a much bigger boat, which would be heavier and require larger engines that burn a lot more fuel. This doesn't make any sense. Our company supports cleaner engine technology when it is proven to be safe, reliable, and practical for the maritime industry."

Response 3138: No changes were made to the Regulation Order in response to this comment. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments, Response 2602.2 regarding feasibility and availability of equipment, and Response 3119.4 regarding requirements for pilot vessels. See Master Response 1 in the Response to Comments on the Draft EA.

Comment 3147.7: "Safety concerns regarding DPF Installation on Tank Barges - Sause Bros. has significant concerns on the safety and design parameters of installing DPF's on oil tank barges. Sause Bros. would like to see CARB more closely examine having DPF's on oil tank barge engines. ABS, USCG, and OCIMF should weigh in on the safety issues prior to rule making."

Response 3147.7: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

Comment 3158.12 & 3378.13: "Safety is our #1 concern.

Heavy marine construction is inherently dangerous. We have been tracking many of the issues manufacturers have been having with their Tier 4 marine equipment. We understand that there has been some communication with the Coast Guard related to the safety issues of the proposed technology. Before a regulation is approved, it is important that the safety concerns be shared with all stakeholders. Allowing more time for implementation allows more time for safety trials and testing. The middle of the ocean is a dangerous place for a mishap, and anything our company can do to send our crews out with every safety advantage ahead of time is our goal. Allowing more time for safety is a must."

Response 3158.12 et al.: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns. See Response 2602.1 regarding USCG role in implementation, and Response 2602.2 regarding feasibility and availability of equipment.

Comment 3158.21 & 3378.22: "Is the Proposed Amendment feasible? Much of technology that is being required does not exist. Contractors like certainty in a very uncertain business. We review historical data, track trends and try to base our estimates on what we know to be true. In this case we are guessing about the costs, we are not sure about how the technology will integrate with our vessels and are very uncertain about the safety of the applications. We do not have the opportunity to see how the technology is applied in a real world situation. We can't ask questions of the installers or colleagues in the industry, because no one else has the technology either. It is not tested or vetted. As of February 2021, there is one possible verified level 3 DPF. Page E-42 of Appendix E, Technical Support Document and Assessment

of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies regarding CARB Verified Level 3 VDECS (DPFs) states the following (underline for emphasis, ours):

“As of February 2021, CARB has verified a variety of devices for various sectors including on/off-road, stationary, transportation refrigeration unit (TRU), auxiliary power unit (APU), cargo handling equipment, and marine applications.⁶³ There is one verified device for marine applications, the Rypos ADPF... Success of possible retrofit requirements is contingent upon the technology developers applying for and receiving verification from CARB for their diesel emissions controls strategies (DECS). There are currently three established companies who are interested in submitting their products for CARB verification. The number of options for retrofits should increase as requirements for DPFs are adopted and more products penetrate the market.”

It should be noted that a Tier 4 DPF for marine application is not on the market. In the timeframe proposed for compliance, it would be foolish to retrofit your vessel with a Tier 4 engine and then install a DPF in a separate transaction. The loss of time in installation and the increase in cost would not be justified.”

Response 3158.21 et al.: No changes were made to the Regulation Order in response to this comment. The CARB Marine Verified Rypos Active Diesel Particulate Filter (ADPF) mentioned above is CARB Marine Verified to Level II, not Level III. Rypos is currently pursuing an in-use CARB Marine Verification for a Level III DPF and commented during the CHC Board Hearings on November 19, 2021 and March 24, 2022 that they are ready and willing to support technology development for additional marine aftertreatment systems able to provide CHC Regulation compliance pathways. Nett Technologies is another retrofit exhaust aftertreatment OEM currently pursuing an in-use CARB Marine Verification for a system with a Level III DPF and a Mark V SCR. See Response 3121.24 referencing Response 3158.1 et al. and Response 2602.2.

Comment 3158.22 & 3378.23: “Page 42 – 44 of Appendix E, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, California Maritime Academy Feasibility Study indicates the following (underline ours for emphasis):

“CARB commissioned the California State University Maritime Academy (CMA) to evaluate the feasibility of repowering and retrofitting in-use harbor craft with Tier 4...The overall conclusion from the study is that there are a number of feasible compliance options for a broad range of different CHC types evaluated. However, because many vessels have unique designs, no assumptions can be made about the technological feasibility regarding a specific vessel without a thorough analysis of its design to determine what engine and after treatment options are available. In some cases where changes are required to a vessel’s structure, the repower project will require a design review by a naval architect to ensure the modifications will not negatively affect the vessel’s stability or seaworthiness. The technological capability of repowering with engines and aftertreatment to meet the Tier 3 or 4 + DPF emissions performance standard is dependent on many variables and must be thoroughly evaluated on a case-by-case basis for every vessel. Therefore, CARB staff used the

study to evaluate the likelihood of a vessel needing to be replaced to meet the proposed emissions performance standard in the cost and economic analyses, and in developing the Proposed Amendments. The extensions may keep a fleet in compliance, but they still do not allow adequate time for analysis and installation once the technology is available. Once the technology is available, there is a year for installation once the product comes on the market. That is not enough time to come up with funding or installation arrangements.”

There is not a “one size fits all solution” to upgrading vessels. Owners need time to evaluate options when they are available on the market in order to decide what is the best approach in terms of safety, feasibility and practicality for each company. It has been noted that there are compliance extensions available if the technology is not available within the compliance timeframe.”

Response 3158.22 et al.: Staff made no changes to the Regulation Order in response to the received comment. As the commenter has pointed out, compliance extensions are available for eligible vessel owners, including for lack of equipment availability, as provided in subsection 93118.5(e)(12)(E). Staff also included assumptions for some vessel replacement to take place when considering compliance costs. See Response 3158.1 et al. for more information.

Comment 3158.23 & 3378.24: “The CHC Proposed Amendments allow for a low use compliance pathway, however, if a company is within an area of Disadvantaged Communities (DAC) the low-use compliance thresholds would be half of other areas of the State. This puts Owners in these areas at a huge disadvantage in terms of competing for business and being able to take advantage of low use options. It becomes very impractical to maintain a marine vessel every year for only half of the allowable hours of use. A pre-tier 1 engine could be used 40 hours, just barely a week of work. This is definitely not a compliance pathway that is cost effective or practical.

Engine Tier	Pre-Tier 1	Tier 1	Tier 2	Tier 3 or 4
DACs (hours/year)	40	150	200	350
All Other Areas (hours/year)	80	300	400	700”

Response 3158.23 et al.: CARB staff made no changes based on the received comments. See Response 3171.

These low-use hour limits reflect the annual operating hour thresholds at which the emission reductions from an engine replacement or repower are cost-effective, using the cost-effectiveness threshold of \$100,000/ton of pollutant emissions reduced that is standard for incentive programs offering grants for zero-emission technology.

Furthermore, it is imperative that emissions be reduced for DACs that have historically experienced disproportionate cumulative burdens from exposure to air pollutants. To ensure that DACs do not suffer from flexibilities offered to operators, such as the low-use compliance pathway, operational thresholds are lowered for vessels operating within two miles of a DAC.

Comment 3170.3: “3) Subchapter M operators are bound by strict vessel stability requirements. If forced to install DPF+SCR aftertreatment systems, this could put many tugboats out of compliance with 46 CFR 170-173. The Cal Maritime Feasibility study points out that, in the case of ship assist tugs, the added equipment will raise the Vertical Center of Gravity (VCG), thus impacting the vessel's range of stability. The push to implement Tier 4 + engines w/ DPF SCR aftertreatment systems also assumes that tugboat designs are flexible and can accommodate the added equipment without major modifications to the vessel. This is incorrect, and is even stated throughout the Cal Maritime Feasibility Study, which "cherry picked" specific vessels in each CHC class that were most compatible with these new engine upgrades. This study asserts that, while these engine upgrades are technically feasible onboard a very specific vessel, it would require extensive rerouting of exhaust systems and a complete rearrangement of the engine room in order to make space for the aftertreatment equipment such as the tank and .PF SCR silencers. Considering that a tugboat's major components are deeply integrated throughout the vessel, making modifications such as the ones being proposed would be nearly impossible without having to retrofit the entire ship. Additionally, there are concerns regarding the impact of the DPF SCR aftertreatment systems on the vessel's + exhaust system which was not addressed in the Cal Maritime Feasibility Study. These aftertreatment systems choke the flow of exhaust creating a backup of pressure which can lead to engine failure. This highlights a valid safety concern, rather than a fiscal burden. Attempting to rapidly force unavailable, infeasible, and untested technology upon this specific class of vessel will put stability, and ultimately crew safety, in jeopardy.”

Response 3170.3: No changes were made to the Regulation Order in response to this comment. See Response to Comment 3170-1 in the Response to Comments on the Draft Environmental Analysis.

Comment 3170.4: “4) CHC operators are faced with limited options for installing EPA certified marine engines and aftertreatment systems. Currently, there are not enough engine manufacturers producing the necessary ranges of Tier 4 EPA certified engines, or Level 3 DPF aftertreatment systems for marine use. As of today, the new proposal will force every CHC operator, covered under this regulation, to patron a small pool of manufacturers in order to install equipment that meets their specifications. While this will certainly benefit the manufacturer(s), it will ultimately cause extensive delays for CHC operators attempting to comply by getting this equipment installed.”

Response 3170.4: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments.

Please see Appendix E – Technology Evaluation of the ISOR, Table E-15 on page E-40, for a list of commercialized Tier 4 marine engines as of 2021. CARB is aware of additional engine OEMs and exhaust aftertreatment retrofit OEMs that are producing engines for the EU Stage V market and are currently pursuing U.S. EPA Tier 4 marine certification. Additionally, there are two retrofit aftertreatment OEMs currently pursuing CARB Marine Verifications, one for a Level III DPF and the other a full exhaust aftertreatment system with a combined Level III DPF and a Mark V SCR system (85 percent particulate matter (PM) and 85 percent NOx reduction).

Comment 3195.24: “The fleet mechanic and engine manufacturers are concerned with Tier 4 engine and DPF fire issues as well as engine inoperability during periods of DPF cleaning. CPFV’s troll at slow speeds and the DPF would potentially plug up creating a mechanical failure situation when at sea with passengers. In light of the Conception fire incident and the use of boats by passengers, the USCG is carefully monitoring any changes to these vessels pursuant to Subchapter T of the Code of Federal Regulations.”

Response 3195.24: No changes were made to the Regulation Order in response to this comment. See Responses 3018 and 3038.3 regarding the Conception fire, and Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

Comment 3195.38: “CARB Failed to Account for Differences in Land-Based versus Maritime-Based Operations and Ignored Identified Safety Concerns Attendant to DPF Use While at Sea

CARB wants the marine engines on CHC equipped with DPFs, the same technology appearing on trucks and off-road equipment that is causing extensive downtime for truckers and farmers. In order for a DPF to not become plugged, it must run at high RPMs, in stark contrast to CPFVs boats that typically troll for fish at low RPMs. Under low RPMs blockage is quite common, creating significant heat and severe backpressure on engines, sometime taking hours to clear the blockage and restart stalled engines. A stalled truck is very different from a stalled boat, adrift at sea, with numerous human passengers at risk. A stalled boat coming into port would have a risk of running aground or crashing into the dock, which would result in damage to the vessel and potential injuries to crew and passengers. CARB has received an October 28, 2021, letter from the California Association of Harbor Masters and Port Captain expressing this same concern.

Under the best-case scenario, boats could be adrift for hours as crews try to recover engine systems. More likely, at sea rescues would become common due to engine failure. In a worst case scenario, engines fires, which have occurred on truck engines using DPFs, could occur putting passenger and crew at severe risk.

In a surprising and glaring omission, CARB did not consult with the USCG, that regulates the safety of passenger vessels, until after the proposed rule was drafted. Due to the seriousness of this issue, CARB should have done a detailed analysis of the health and safety risks for the use of Tier 4 engines with DPFs on passenger vessels, which operate far out to sea, away from first responder services.”

Response 3195.38: No changes were made to the Regulation Order in response to this comment. See Response to Comment 3195-7 in the Response to Comments on the Draft EA.

Comment 3195.49: “It is Not Appropriate to Push Forward Regulations Which Require Installation of Unavailable Technology While Serious Questions About Safety and Feasibility Remain Unanswered.

The CHC rules as drafted will require installation and use of DPFs, which are commonly found on tractor trailers and farm equipment. Have DFPs been used on passenger boats before? Are they safe for passenger harbor crafts? Have they been tested on passenger fishing boats

and whale watching boats that typically operate at low RPMs? If so, where, and when, and for how long? Please provide the research.

It is not uncommon in the trucking industry for DPFs to become clogged, requiring the trucks to leave the road and “regenerate” the DPF. The circumstances would differ vastly for a vessel miles from shore or in a narrow harbor. What evaluation has CARB made of safety considerations involved if a DPF becomes clogged, stops working and needs to be regenerated while at sea? Boat owners are concerned that DPFs could stall engines at sea and in the worst case, catch fire. Has CARB evaluated these concerns?

<https://www.nbcbayarea.com/news/local/bay-legal-truckers-sue-ca-again-claiming-air-filter-puts-public-safety-at-risk/36208/>

Has CARB conducted any research into the safety of DPFs at sea? Please share the information.

Have safety concerns associated with the use of DPFs been raised before? If so, please share the circumstances.

Has CARB evaluated the risk of stalled engines, especially if vessels are near shore and entering/existing harbors, and most notably during high winds and seas?

Has CARB provided the Cal Maritime report to the USCG and solicited its input? (The Cal Maritime report says that the technology does not exist for sportfishing and commercial fishing boats and if it did, it would be unsafe).

If the USCG determines that DPFs are not safe at sea, will CARB revise the regulations and, if so, how?

Should CARB be permitted to develop and impose regulations that are economically and technologically infeasible, requiring technology that is unavailable, not tested for the prescribed use, or proven as safe or practical for CPFVs?”

Response 3195.49: No changes were made to the Regulation Order in response to this comment. See Response to Comment 3195-8 in the Response to Comments on the Draft EA.

Comment 3195.52: “Has CARB conducted any research that electric motors will not invite stability or safety issues, and whether the technology can sufficiently support fishing practices, including multi-day long distance trips?

<https://www.marinelink.com/news/hybrid-tour-boat-catches-fire-norway-485995>

For those that replace their boats, how confident is CARB that the larger steel boats will be appropriate for conversion to a hybrid or zero emission system? Wouldn't vessels constructed of lighter materials be more appropriate for battery or hydrogen-based propulsion systems?”

Response 3195.52: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns. For further detail, see the Zero-Emission Chapter: Lithium-Ion Battery Energy Storage Systems in Appendix E of the Staff Report beginning on page E-101.

Comment 3255: "The Betty O 's 5 year USCG Certificate of Inspection was reissued in February of this year. On Dec 15 she will mark her 100th birthday. Exhaust system upgrades proposed in the CARB report to be considered by the Board Nov 19 would not be possible to undertake for the Betty O. Her wood construction could not easily accommodate the exhaust upgrade. The boat's engine compartment was subdivided in 2001 to meet a timely Federal Code of Regulations requirement, halving the original engine room space while retaining the overhead clearance established by the deck beams. An exhaust system upgrade could not be accommodated within this fixed engine space. There is minimal clearance now between the turbo charger and the compartment ceiling. Please bring this under consideration when evaluating the report proposals.

Response 3255: No changes were made to the Regulation Order in response to this comment. CARB staff will evaluate feasibility extension requests on a case-by-case basis, see Response 2602.2.

Comment 3295: "We were involved in a feasibility study conducted by a well respected marine architectural firm. The study was found to -- found that the retrofitted vessel passenger capacity would have to be reduced from 390 to 172 passengers, a 56 percent reduction, due to the added weight of the Tier 4 application. A new Tier 4 vessel would cost approximately \$20 million. As a private company, we cannot afford commercial financing for what would be exceeding \$120 million to upgrade the entire fleet."

Response 3295: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3165.5 regarding feasibility determinations.

Comment 3305: We request that a list of Tier 4 power plant systems for the marine environment that are currently approved for installation on a subchapter (t) vessel by any Coast Guard inspections office nationwide, Sector San Diego or otherwise, be published."

Response 3305: No changes were made to the Regulation Order in response to this comment. USCG inspects engine installations on inspected vessels to verify they are completed according to the applicable 46 CFR Subchapter design and safety standards and does not approve or certify engines. Marine grade engines are approved by type classification societies such as American Bureau of Shipping (ABS). Engine emission certification standards are set by U.S. EPA. See Appendix E Chapter IV in the ISOR for a table listing currently certified Tier 4 marine engines in Table E-15 and an overview of the protocols USCG would require evaluating feasibility on a case-by-case basis. For a list of engines that have been approved on Sub-T vessels to date, the commenter would need to contact the USCG Marine Safety Center in Washington D.C.

Comment 3321.2: "CARB's current proposal has not involved the United States Coast Guard. We had a passenger vessel that burned up last year and killed over 34 passengers. The Coast Guard is on high alert. These new high def Tier 4 engines are at 2500 degrees. They will catch on fire, as our vessels are over 50 years old, most of them wood and fiberglass in the fleet."

Response 3321.2: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

Comment 3359: “What is being proposed in the rule for machinery is not feasible. There are safety concerns of stability and heat that would make it a constant worry of breaking down at sea with a boat load of passenger, especially in this area of strong winds waves and current.”

Response 3359: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft Environmental Analysis regarding safety concerns.

Comment 3363.2: “We are extremely disappointed to see that our company data was incorporated into the Standardized Regulatory Impact Assessment (SRIA), but that none of our concerns about safety, practicality, cost or feasibility have been addressed.”

Response 3363.2: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft Environmental Analysis.

See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options intended to provide compliance flexibility to eligible fleet operators. Also see Response 3158.28 et al. for information on inputs to the SRIA.

Comment 3365.1: “One of our principal concerns with these proposed amendments is that it will be impossible to fit the current DPF technology in our vessels thereby requiring us to replace most of our fleet to comply with the proposed requirements. While CARB acknowledges that fitment is a major issue in many of the commercial harbor craft industries, their proposed regulations assume that there will be a need for “fleet replacement” in cases where this occurs. If these amendments go into effect in their current form, the economic impact would be ruinous. Of the 23 vessels in our fleet, conceivably only three of them may have the space required for current DPF components. That would leave 20 vessels in that would need to be replaced.”

Response 3365.1: No changes were made to the Regulation Order in response to this comment. See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options intended to provide compliance flexibility to eligible fleet operators. See Responses 3119.5 and 3165.5 for more detail on Extension E3, and see Response 2602.2 for information on feasibility determinations.

Comment 3377.1: *“Infeasible Compliance Schedule*

The tug, tow, and barge industry is committed to reaching zero emissions in the safest and most efficient manner. However, the timeline proposed in the new CHC rule gives companies less than four years to repower all their vessels and less than 6 years to modify Tier 4 engines with DPFs.

This framework is neither financially feasible, operationally achievable nor responsible, as it jeopardizes the safety of mariners and the viability of businesses. When the alternative is decommissioning a vessel, companies will rush changes to critical components without taking

the necessary time to ensure these retrofits are completed in a safe and responsible manner. The USCG, ABS, and every major vessel class society recognizes, and requires operators to properly study and apply for any changes to major components or essential pieces of machinery. This study includes performing a proper engineering assessment of the change, and involves a:

- load analysis,
- stability study,
- propeller load in both static and dynamic conditions,
- failure mode and effects analysis (FMEA), and
- thorough engineering review of the results.

This process takes more than a year to complete, and cannot begin until each component, and all its specifications, are provided. Once this is complete, it can take months and even years to source an engine and compatible auxiliary equipment. In addition to procuring materials, a shipyard facility and replacement vessel must be located. Tier-4-plus-DPF repowers will require major structural changes and an increase in power generation capacity, significantly increasing the scope of engineering requirements over typical retrofits.

While there is a one-year extension in the proposed rule, the realities of vessel operations require a window that allows for all the steps above. The compliance schedule must be modified to allow for adequate time to transition vessels. AWO recommends a four-to-nine year-phase-out period.”

Response 3377.1: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff understands the evaluation process take time which requires vessel owners or operators to plan ahead and coordinate with the manufacturers and shipyard facilities to make sure that repowers and retrofits could be completed by applicable compliance dates.

See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options all intended to provide compliance flexibility to eligible fleet operators. Note that these extensions provide extensions for various scenarios including equipment availability, feasibility and inability to pay for replacement vessels, Tier 4 engine with low annual use under 2600 hours (1300 in a DAC) DPF extension, and a scheduling extension for shipyard capacity or for multiple vessels/engines in one fleet having the same compliance deadline year.

Comment 3377.2: *“DPF Compliance Requirements*

CARB’s proposed rule that requires Tier 4 engines with DPFs on existing vessels is not feasible. Currently, there is little to no DPF technology that can be used for marine applications nor is there a DPF-certified by the USCG or ABS. Additionally, operators cannot begin to determine the utility of DPFs on their vessels because there is no manufacture approved DPFs available for marine engines.

Even if DPFs for towboats or barge existed, innumerable challenges remain. For example, estimated specs would preclude DPF installation in many of these types of vessels because of

limited size and engine space. Also, back pressure created by the DPF could damage the engines, and the heat generated by the DPF may make vessels unsafe to operate. Even once approved, this type of installation will not be plug-and-play. Rather, it will require extensive engineering studies to determine if and how they can safely integrate into vessels. Before any work can start, an engineering study must determine its safe installation for the specific make and model of the engine. This study will need to evaluate the exhaust system in use, the available space in the exhaust trunk and stack, and the stability concerns of the vessel. After this comprehensive study, the impact of the DPF on the performance of the engine will need to be measured to determine if it creates unsafe operating conditions. There is not enough time to perform the studies necessary as well as all the other work that needs to be completed to repower an engine. It is unreasonable to require the implementation of unapproved and untested technology.

The proposed rule includes a two-year extension if no certified engines or DPFs are available by the date of compliance¹. However, it limits the renewal of the extension to only an additional two years. At the current rate of development, it is unlikely that this technology will be certified by that time. AWO requests an amended deadline for complying with DPF installation to no sooner than six years from the date of full approval by the USCG, ABS, and the engine manufacturer. We ask that this determination would be made at least one year before the compliance deadline for the vessel year and type.”

Response 3377.2: CARB staff made no changes to the Regulation Order based on the received comments. Currently there are a few DPF manufacturers working with CARB to obtain Executive Orders for Level 3 Marine DPF Verification. The verification application must include a detailed discussion of principles of operation and system design, description of regeneration method, and a detailed emission testing plan, durability testing plan, field demonstration, and in-use compliance testing to ensure that the DPFs that are verified are durable and meet the emission reductions claimed. In addition, related parameters, for example, back pressure and temperature would be monitored and meet the requirements based on the provisions set forth in the Verification Procedures.

Engines meeting U.S. EPA Tier 4 marine emission standards are available for 600 kW and above, and currently only available for certain hp range for engines less than 600 kW. In power subcategories under 600 kW, only Tier 3 + DPF would be required if Tier 4 engines are not available at the time of compliance date. In addition, vessel owners or operators may apply for feasibility extension E3 if engines or DPF are not feasible and cannot afford vessel replacement.

See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options all intended to provide compliance flexibility to eligible fleet operators. Note that these extensions provide extensions for various scenarios including equipment availability, feasibility and inability to pay for replacement vessels, Tier 4 engine with low-annual use under 2600 hours (1300 in a DAC) DPF extension, and a scheduling extension for shipyard capacity or for multiple vessels/engines in one fleet having the same compliance deadline year.

Comment 3425: “Good morning. This is Rick Luliucci with The Vane Brothers Company.

The tug, towboat, and barge industry is committed to reaching zero emissions in the safest and most efficient manner. However, the timeline proposed under the new Harbor Craft Rule gives companies less than four years to repower all of our vessels, and less than six years to modify Tier 4 engines with diesel particulate filters, which has not been invented for marine use.

This framework is neither financially feasible, operationally achievable, nor responsible, as it jeopardizes the safety of mariners and the viability of businesses. Companies will rush the critical components and not take the time necessary to ensure the retrofits are completed and in a safe responsible manner.

While there is a one-year scheduling extension in the proposed rule, the reality is this process goes through multiple steps, including the United States Coast Guard, which necessitates a much longer window. For the sake and safety of our mariners and the sustainability of this industry, we urge you to vote to amend the rule to ensure that a safe timeline exists for mariners. Please amend the deadline for complying with the diesel particulate filter installation to no sooner than six years from the date of the full approval of the United States Coast Guard, the American Bureau of Shipping and the engine manufacturers.

I'd like to touch upon an unfunded mandate of DPFs within this Harbor Craft Rule. Without the availability of manufacturer-approved diesel particulate filters, CARB is requiring the adoption of untested, unproven, and unavailable technology. How does CARB see moving forward with Tier 4 engines when DPFs are not feasible on current vessels. They make the leap because they do not understand the industry, the importance of mariner safety in their desire to make a farce of this public process.

This technology currently does not exist, cannot fit in vessels, and it's a known safety hazard in other modes of transportation. As a solution, please do not move forward with this bad public policy. In its place, amend the deadline for complying with DPF installation to no sooner than six years from the date of approval by Coast Guard, American Bureau of Shipping, and the engine manufacturers."

Response 3425: No changes were made to the Regulation Order in response to this comment.

See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options all intended to provide compliance flexibility to eligible fleet operators. Note that these extensions provide extensions for various scenarios including equipment availability, feasibility and inability to pay for replacement vessels, Tier 4 engine with low annual use under 2600 hours (1300 in a DAC), DPF extension, a scheduling extension for shipyard capacity, or for multiple vessels/engines in one fleet having the same compliance deadline year.

Please see Appendix E – Technology Evaluation of the ISOR for a list of commercialized Tier 4 marine engines as of 2021.

CARB is now aware of additional engine OEMs that are producing engines for the EU Stage V market currently pursuing U.S. EPA Tier 4 marine certification for their product lines some under 600 kW and some well over. Additionally, there are two retrofit aftertreatment

OEMS currently pursuing CARB Marine Verifications, one for a Level III DPF and the other a full exhaust aftertreatment system with a combined Level III DPF and a Mark V SCR system (85 percent PM and 85 percent NOx reduction).

As directed by the Board in Resolution 22-6, CARB staff will be establishing an ongoing working group to assess the commercial availability of lower-emitting combustion engines and zero-emission technology for all categories of harbor craft and report to the Board beginning in 2024. As part of this effort, CARB staff will develop and update a continuously evolving list of U.S. EPA certified engines or CARB-Verified aftertreatment systems.

Please also see Response 2602.2 for more detail on feasibility and availability of equipment.

Comment 3427: "Thank you, Chair Randolph and Board members. My name is Michael Breslin. I'm the Director of Safety for the American Waterways Operators. I am the safety expert for the tugboat, towboat, and barge industry. My testimony is about diesel particulate filters or DPFs. A simple Google search for DPFs for California will return a record of the dangerous history and ongoing issues with these devices. This mandate, if passed unchanged, will require vessel owners to install these unsafe devices, increasing the chance of a fire aboard their boats.

Before you require -- (clears throat) -- Excuse me. Before you require DPFs, I would ask that you better understand these devices, which frankly do not exist in a way that they could be safely installed in the proposed marine applications. DPFs do not reflect best available technology to support the advancement of clean technology. Rather, it will cause an untenable burden on mariners and possibly increase the carbon footprint of California by 14 boat owners to build new vessels or complete major overhauls of their current vessels. This rule does not meet its goal to reduce carbon output.

I would like you to know there is not the space needed for these devices on existing vessels. There's no room to install the large filters. And if somehow you could build the space, it would impact that stability of the vessel as established by Cal Maritime study, which raised this concern.

Again, even if we could build in room for the DPFs and we somehow made the vessel stable and had it certified by a marine engineer, the pressure created by the DPF would damage the engines, and the heat generated by the DPFs may make the vessels unsafe to operate. DPFs, even once approved, will not be ready use and will require extensive engineering studies to determine if and how they can be safely integrated into existing vessels.

It is unreasonable to require the implementation of unproven and untested technology. As I indicated a moment ago before any work is started to figure out how to install DPFs and engineering study must determine its safe installation of the specific make and model of the engine. This is a cost that must be absorbed by our maritime operators adding to the financial burden your rule is imposing without consideration to the economic devastation it will bring to America's supply chain by forcing operators out of business, reducing capacity without (inaudible).

Thank you."

Response 3427: No changes were made to the Regulation Order in response to this comment. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns, Master Response 4 in the Response to Comments on the Draft EA regarding indirect impacts, and ISOR Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies – Chapter IV regarding equipment availability.

Comment 3445.1: “Second, manufacturers currently produce very clean SCR-equipped Tier 4 commercial marine engines in a broad range of power and displacement categories. However, the types of Tier 4 Plus engines that the amended regulations would mandate are not commercially available across the regulated power range nor are sufficient verified Level 3 DPF retrofits.

Third, instead of trying to compel the deployment of unavailable hybrid Tier 4 Plus systems, CARB should work to foster the accelerated installation of available Tier 4 systems. Those Tier 4 products could include engine families certified at emission levels compliant with the Euro 5 stage -- excuse me, the Euro Stage 5 standards. And significantly, Euro Stage 5 systems are equipped the DPFs.

Fourth, CARB should fully coordinate any final CHC amendments with the U.S. Coast Guard. Without that full coordination and without accounting for the new burdens on vessel owners to obtain additional Coast Guard approvals, this rulemaking will face many significant obstacles.”

Response 3445.1: No changes were made to the Regulation Order in response to this comment. CARB staff continues to push the development of advanced technologies, such as hybrid equipment, due to the emissions reductions that advanced technology achieves, and to be in alignment with Executive Order N-79-20 which mandates an increased transition to zero-emission off-road engines. While staff continues to push the development of these technologies, it is not feasible for all sectors. The 2022 Amendments provide a balance between zero-emission and cleaner combustion requirements.

Please see Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies - Chapter IV, Parts B and C regarding the CMA study (Tier 4 and retrofit DPF feasibility) and USCG regulations.

See Response 2602.2 for details on EU Stage V marine engines, and Master Response 1 in the Response to Comments on the Draft EA for details on coordination with USCG.

d. Affordability/ Small Businesses

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Summary of Comment 1.4 et al.: Many commenters expressed concern over the cost of compliance, specifically for small business sportfishing operators. Commenters stated that the Proposed Amendments are cost-prohibitive and will put many or all sportfishing and whale watching boats out of business. There were broad concerns regarding the resale value of existing boats if they are deemed non-compliant and replaced, and regarding the cost of vessel replacement. Commenters indicated that the sportfishing industry is primarily comprised of small, independent, family-run businesses, who may lose their income, livelihood, and retirement plan. Commenters also expressed concern that costs to upgrade boats will discourage new anglers and force landings to lay off workers or permanently close.

Commenters indicated that replacement sportfishing boats cost \$7-10 million, and sportfishing operators will not be able to afford compliant vessels. A few comments also suggested that CARB consider a buyout plan for vessels that can't be upgraded to meet the standards.

Response 1.4 et al.: Staff acknowledged in the SRIA that industries that operate CHC would face costs and could see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and may face substantial compliance costs. If these businesses are unable to pass on the costs of the 2022 Amendments to customers or if there is a significant change in demand for services, it is possible that some businesses would be eliminated.

To assist vessel owners in upgrading CHC, there are funding opportunities available to provide financial assistance (see Response 1094.3 et al.), and there are feasibility compliance extensions in the 2022 Amendments to allow for more time for compliance in cases of feasibility challenges which will help operators where vessel replacement cannot be afforded. Also, passenger carrying vessels, including ferries, CPFVs, and excursion vessels, with early compliance dates would be eligible to receive an additional two-year feasibility extension due to potential impacts from the global situation that began in 2020. Staff's proposed 15-day changes also provide an additional compliance pathway for CPFVs for a one-time, ten-year compliance extension for vessels that have upgraded all onboard engines to Tier 3 by the end of 2024. (see Response 1.7 et al.). Other vessel categories would be eligible to apply for the 6-8 years of extensions provided in subsection 93118.5(e)(12)(E), and the application process for feasibility extensions would be streamlined based on findings of the CMA study. See Response 3158.1 et al. regarding the various compliance pathways.

Under the proposed 15-day changes, fewer vessel replacements would occur in the timeframe originally assumed for CPFV and for all other vessels. As stated in Master Response 2 of the Response to Comments on the Draft EA, CARB staff expects that owners would be able to sell their vessels with remaining useful life outside the state as these engines are equal to or cleaner than those being used in other states or outside jurisdictions of California and will be compliant there. Please see Response 1.7 et al. and Response 810.1 regarding the proposed 15-day changes.

Requests for a buyout plan by CARB or any other state agencies are outside of the scope of this rulemaking.

Comment 1643.4: "CARB readily admits the proposed regulations are not compatible with some vessels, specifically stating that "vessel replacement will be likely, especially the categories with wood or fiberglass vessels." When more than 80 percent of vessels are constructed with these materials, industry leaders have reasonably concluded that many, if not most, boat owners will go out of business within 6 years from the adoption of the proposed regulations due to the cost of vessel replacement. Moreover, CARB's expectation that these small business owners can easily finance new steel vessels is unrealistic. Even during the best of economic times, no business can lose its most valuable asset long before the end of its useful life and have to completely replace that asset within six years, especially

if their existing vessels, many of which are still being financed via loans, are deemed illegal and have no resale value in California.”

Response 1643.4: CARB staff understands, based on the CMA study and information received from stakeholders, that the vast majority of CPFVs are constructed of wood and fiberglass. This was the basis of CARB staff’s assumption in the SRIA that 99 percent of CPFVs needing to meet Tier 4 + DPF would be replaced rather than repowered. However, CARB staff also expects that development of new technology and compact engines and DPFs will improve feasibility of repowering existing CPFV. Under the proposed 15-day changes (see Response 1.7 et al.), fewer vessel replacements would be expected to occur in the timeframe originally assumed for CPFV. Incentive funding opportunities are also available to provide financial assistance to eligible vessel owners. Also, there are feasibility compliance extensions in the 2022 Amendments to allow for more time for compliance in cases of feasibility challenges where vessel replacement cannot be afforded. See Response 1.4 et al.

Comment 2472.2: “3. Perhaps the most important and overriding factor as to why people like me are objecting CARBs proposal is the cost. For myself and at least 3/4s of my colleagues the cost of implementation is many times greater than what my business is worth. My vessel of wood and fiberglass construction simply will not be able to handle the extremely hot exhaust gases of a TIER 4 engine without being a fire hazard. The cost of replacing my boat with a new one will be in excess of 2 million dollars and take 2-4 years. That is if I can find a boat yard that is able to build my vessel.”

Response 2472.2: CARB staff made 15-day changes to provide a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024, therefore staff expects that fewer vessel replacements would occur in the timeframe originally assumed for CPFV. Please see Response 1.7 et al. and Response 810.1 regarding the proposed 15-day changes, and Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

Comment 2481.1: “Requirements to repower our vessels are excessive for a small business such as ours. The cost to repower one of our vessels would be equivalent to ~20-30% of our annual revenue. The proposed Low Use provisions are vital to small companies.”

Response 2481.1: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff has included both extensions and low use exceptions in the 2022 Amendments. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, would be able to comply without upgrading to the required performance standards. CARB staff expects some vessels would comply by low use, meaning not all the vessels would need to perform upgrades. See Response 1.4 et al.

Comment 2574.4: “State law ensures that regulatory burdens are feasible and equitable both on implementation and for continuing to expand access opportunities for disadvantaged communities. Unfortunately, rather than enhance access to the ocean and economic recovery, the proposed rule would impede coastal communities by putting many family-owned and operated CPFV out of business and reducing affordable access to marine recreation. These requirements are not practicable, they are not cost-effective, and they are

not technologically feasible. So, again, the solution the agency is seeking to implement on these vessels truly doesn't work."

Response 2574.4: The commenter does not specify which state law they are referring to, therefore CARB staff cannot provide a response. However, CARB staff made 15-day changes to provide a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024. See Responses 1.7 et al. and 1.4 et al. regarding the proposed 15-day changes. CARB staff expects that development of new technology and compact engines and DPFs will improve feasibility of repowering existing CPFV by the end of the ten-year extension period in 2034.

Comment 2588.3: "Staff also assume that the current CPFV can be sold in a different market other than California in order to recoup some capital for a down payment on a new build. However, the majority of these vessels were built and optimized for the Southern California live bait CPFV fleet and have little to no value out of state. These types of vessels have not been successfully sold in other markets to date."

Response 2588.3: CARB staff made 15-day changes to provide a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024. Due to the 15-day changes, CARB staff expects that fewer vessel replacements would occur in the timeframe originally assumed for CPFV. Please see Response 1.7 et al. and Response 810.1 regarding the proposed 15-day changes. Master Response 2 in the Response to Comments on the Draft EA describes CARB staff's assumption that most retired vessels would be sold out of state.

Comment 2588.4: "If we (optimistically), assume that a new vessel can be built for \$4.5 million, and we are able to finance 97.5%,¹ the revenue will still not support this business. A 20 year note at 5% will have a monthly payment of \$29,000, or an annual finance cost of \$348,000. A business that normally provides its owners with approximately \$100,000 in salary and disbursements, cannot possibly support a new annual finance cost of \$348,000. If we use the Staff assumption, that a new vessel can be built and financed for \$1,888,816 (Table C-32), we still have an annual cost of \$91,406. Since both of the owners of this business normally split \$100,000 in profits, this business will not be viable. It is also important to note that revenues and profits fluctuate dramatically in this industry depending on both fishing and economic conditions. In 2009 and 2010, gross annual CPFV revenues of New Lo-An Sportfishing fell below \$400,000."

Response 2588.4: Staff calculated an average \$39.78 cost increase per passenger per day per one-way ticket, \$37.05 cost increase per passenger per day per one-way ticket, \$125.96 per passenger per day on "6-pack" Vessel for CPFVs in Appendix C of the SRIA and in the October 1, 2021 Errata document. While this is calculated as a statewide average and not for any specific business, the analysis shows that the average expected price increase per one-way CPFV ticket would be expected to be modest-

In response to concerns from the sportfishing industry that most CPFV would have to be replaced to comply with the proposed performance standards, CARB staff made 15-day changes to provide a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024. Due to the 15-day changes, CARB staff expects that fewer vessel

replacements would occur in the timeframe originally assumed for CPFV. Please see Response 1.7 et al. and Response 810.1 regarding the proposed 15-day changes.

Comment 3119.2: "The Proposed Regulations are unnecessarily complex, restrictive, and difficult for vessel owners to understand. Effective regulation should not require small business to bear the expense of hiring myriad consultants and attorneys to interpret, evaluate and monitor requirements and initial/ongoing compliance."

Response 3119.2: The 2022 Amendments follow the public process procedures and other requirements of the California Administrative Procedure Act for rule development. CARB staff are available to work with any stakeholder needing assistance with understanding how the 2022 Amendments apply to their business. CARB staff is also in the process of developing fact sheets to help affected vessel operators and facilities understand the requirements, and will continue to conduct outreach and refine posted materials during the implementation phase.

Comment 3139: "I am a business owner of a sailing and powerboating school in the San Francisco Bay area. It seems that some clarification is needed to the regulations with regards to sailboats. The current rules imply, but do not expressly exempt sailboats from the ruling. The language should really be amended to exclude sailboats as they are propelled primarily by wind making them hybrids under the current language. As the document is currently written a lot of reporting is required to apply for exemptions and extensions which will cause an untold burden on our business as well as CARB given that we would have to hire additional staff to track and submit this paperwork for all of our boats. CARB would need additional staff to also review and approve all of the paperwork, which seems like an unnecessary expense. Please reconsider and exclude sailboats from the proposed regulations."

Response 3139: No change was made to the Regulation Order in response to this comment. Sailboats in commercial operation often operate as excursion vessels and are subject to the 2022 Amendments if they do not meet the definition of "Ocean-going vessel" or "Recreational Vessel." A sailboat with an outboard motor can meet the 2022 Amendments' definition of a "Zero-Emission Capable Hybrid Vessel." The proposed definition in 93118.5 (d) is as follows: "Zero-Emission Capable Hybrid Vessel" means a CHC utilizing a hybrid power system with two or more onboard power sources, one or more of which is approved by CARB's E.O. to be capable of providing a minimum of 30 percent of vessel power required for main propulsion and auxiliary power operation with zero tailpipe emissions when averaged over a calendar year." See subsection 93118.5(e)(10)(C)c.i. regarding information required to demonstrate meeting this performance standard.

Also see Response 3299.2 regarding the 15-day change to the Regulation Order which provides a streamlined process for applying for the first two-year feasibility extension.

Comment 3158.28 & 3378.29: "R.E. Staite Engineering, Inc. estimated our up-tier costs based on the difference between a Tier 3 engine quote and a Tier 4 engine quote we had received from a vendor as we were preparing a grant for one of our tug boats. A DPF for the marine engines we are looking at is not available, so the DPF cost that we provided to CARB Staff was estimated. Our ESTIMATED, ROUGH ORDER OF MAGNITUDE costs to up-tier all

of our engines is approximately \$12 million dollars, assuming we are not purchasing new vessels. Seven of the engines would need to be up-tiered by 2024. The remainder of the engines are spread between 2024 and 2030 with another larger cluster that would need up-tiering in 2028. We are already too late to apply for Carl Moyer funding for the 2024 engines as we need a three-year window between the grant application and when the compliance is mandatory.”

Response 3158.28 et al.: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The source of cost estimations included stakeholder inputs, the CMA Study and other sources. These sources represented the best available data to CARB staff at the time when the cost impacts of the 2022 Amendments were calculated, and included information provided by stakeholders in response to the draft cost documents CARB staff posted for public input in September 2020.

The 2022 Amendments also include necessary pathways for vessel owners and operators to remain in compliance by receiving compliance extensions if technologies do not become available or if they are available but do not fit on the in-use vessels. See Response 3158.1 et al. for more detail on the feasibility extensions, ACE plan, and ZEAT credit options all intended to provide compliance flexibility to eligible fleet operators. Note that these extensions provide extensions for various scenarios including equipment availability, feasibility and inability to pay for replacement vessels, Tier 4 engine with low annual use under 2600 hours (1300 in a DAC) DPF extension, and a scheduling extension for shipyard capacity or for multiple vessels/engines in one fleet having the same compliance deadline year. To the extent compliance extensions are utilized, the extended time could count toward surplus emission reductions for incentive programs such as Carl Moyer.

Comment 3158.33 & 3378.34: “Page IX-6 of the Staff Report: Initial Statement of Reasons (ISOR) states the following as it relates to Small Business:

Creation or Elimination of Businesses The Proposed Amendments do not directly result in business creation or elimination. However as discussed in Chapter E of the SRIA, changes in outputs of different sectors might indicate the creation or elimination of businesses in the State.

Based on the modeling of output changes, many sectors, such as shipyards and ship and boat building industry may experience an increase in output which may result in the creation of new businesses Industries that operate CHC would face costs and see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and may face substantial compliance costs. If these businesses are unable to pass on the costs of the Proposed Amendments to customers or if there is a significant change in demand for services, it is possible that some businesses would be eliminated.

It would be extremely difficult to pass costs to our clients. We have an estimated \$12M of potential expenses (assuming we have all re-powers, the cost is significantly more if we have

to purchase new vessels). If we spread that cost over the projects that we bid, we would likely not be very competitive, reducing our volume of projects each year which translates to reduced profits and income to spend on repowers or new purchases. "The 2022 Amendments also include necessary pathways for vessel owners and operators to remain in compliance by receiving compliance extensions if technologies do not become available or if they are available but do not fit on the in-use vessels.

Response 3158.33 et al.: No change was made to the proposed regulation in response to this comment. Certain types of CHC operations in California are captive and unique to the State. For example, tug and towing vessel activity directly support the California economy and movement of freight through its Ports. Therefore, any statements that the compliance can't pass on cost to clients are speculative and unfounded. CARB has not received any data supporting that those costs would not be feasible.

Please also see Response 3158.34 et al.

Comment 3158.34 & 3378.35: "Page X-6 of the Staff Report: Initial Statement of Reasons (ISOR) states the following as it relates to Small Business:

Small Business Alternative The Board has not identified any reasonable alternatives that would lessen adverse impact on small businesses while still achieving necessary emission reductions.

Small business is a vital part of the California economy. Small businesses are a small percentage of the marine construction sector. R.E. Staite has suggested several reasonable solutions (Section III) that would reduce the impact on small business. Making concessions for small business based on size of fleet, amount of horsepower in fleet or number of employees would improve the potential outcome for some businesses if the Proposed Amendments are approved."

Response 3158.34 et al.: Thank you for your comment. No change was made to the 2022 Amendments in response to this comment. CARB Board Members did not direct CARB staff to make any 15-day changes to the Regulation Order to provide alternative compliance pathways for small businesses, other than the extensions for CPFVs, which would apply to CPFV businesses of any size. It is important to reduce emissions from all CHC, including those operated by small businesses, because as described in Chapter II of the Staff Report, their emissions are impacting the health of disproportionately impacted communities and Californians in coastal communities throughout the State. CARB staff has included numerous provisions in the Regulation Order for eligible vessel owners in order to provide a number of compliance deadline extensions (some are renewable), an ACE Plan application for greater flexibility on compliance methods utilized by fleet operators (subject to approval by CARB's E.O.), and a ZEAT credit for eligible stakeholders who adopt zero emission technology early that is not already being mandated for compliance in their respective vessel sector. See Response 1.4 et al.

Comment 3165.6: "CCE consulted a principal with the well-respected marine architectural firm of Incat Crowther Design (designer of three of CCE's most modern catamarans). According to Incat Crowther Design, it would cost \$7-9+ million to repower and retrofit the

CCE vessel, M/V Jet Cat Express, to CARB's mandated Tier IV level. Similar scale costs would apply to all eight of the vessels in the CCE fleet."

Response 3165.6: CARB staff made no changes to the Regulation Order based on the received comments. Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA. The sources of cost inputs included vessel owners/operators, the CMA study, and other sources as specified in the SRIA. The range of the retrofit and repower costs were from \$800,000 to \$19 million per vessel for catamaran ferries. The \$7-9+ million cost quoted in this comment is within this range.

Comment 3165.10: "At present capacity, a change of this magnitude is not achievable and is not commercially financeable over the required 10-year payback period. Nor does it make good policy sense given the proposed regulation is simply a waypoint on the path to zero emissions."

Response 3165.10: As described in Chapter II of the Staff Report, emission reductions are needed to reduce the uncompensated health and environmental costs to communities in California near where harbor craft operate, as well as people living and working miles away.

The 2022 Amendments are only imposing ZEAT requirements on two categories of CHC – excursion vessels and short-run ferries. Owners and operators of other categories of vessels may also elect to use ZEAT. CARB staff will be assessing the commercial availability of zero emission technology for CHC in future technical working group meetings. See 17 CCR section 93118.5(e)(12)(E)3.d.vii..

Also see Master Response 5 in the Response to Comments in the Draft EA regarding comments related to more stringent regulation.

Comment 3195.50: "If a boat owner can finance a new boat, what is the likelihood that their new boat will have to be replaced by 2035 or 2045 when the Governor's Climate Change policies (carbon neutral if feasible) takes effect? How will that accommodate an ability of owners now to know they can recoup their investment in upgraded technology that could become functionally obsolete in less than 15 years?"

Response 3195.50: The 2022 Amendments take into account Executive Order N-79-20 which set a goal to transition to 100 percent zero emission off-road equipment by 2035 where feasible, as it already includes zero-emission requirements where feasible (for short run ferries) and strict performance standards for other vessel categories. See Response 1094.1 et al. regarding the Board's direction for CARB staff to complete a biennial technology review beginning in 2024 and a Midterm Review in 2028.

Comment 3261.6: "[CARB assumes] the availability of financing for new vessel construction when such financing is difficult to obtain just for 60% of value for an existing vessel, much less 80% or more of the value for a new vessel;"

Response 3261.6: CARB staff made no changes to the Regulation Order based on the received comments. The cost analysis, to provide a conservative estimate of compliance costs, does not account for use of incentive funding. Even with no incentive funding assumed, the 2022 Amendments remain cost-effective (\$5.3 billion monetized health benefits

versus \$2 billion cost). CARB staff does expect that some operators will be able to utilize partial or full funding through the use of incentive programs. Please see Response 1094.3 et al. for more information on funding.

Comment 3365.2: “We estimate that replacement vessels would cost between \$3M - \$11M each, or more, depending on the vessel. Using a very conservative average of \$7 million per vessel, that would amount to a total replacement cost upwards of \$140,000,000.00 over the duration specified in the proposed regulations. We believe that even with grant money that may become available to assist with fleet replacement, this would be unattainable for any business our size. Furthermore, the idea of passing these costs on to our customers is patently unrealistic.

Our SBA small business classification is under \$30 million, we finance our fleet out of necessity so fleet replacement would also have to include paying off existing loans. As the equipment becomes useless with the proposed regulations, resale value is going to be very low, certainly below loan balances thereby leaving us with yet another untenable situation.

The amount of money we have already spent as well as the money we intend to spend in the future to bring vessels to the current standards is already very taxing on our business despite the grant monies we have received to help offset the financial impact. As CARB considers adopting the proposed new requirements as specified in the draft regulations, and the technology that would be required to bring vessels to the new standard, we believe they should consider the three following factors: 1. Is the technology readily available? 2. Is it commercially feasible? and 3. Is it economically viable? Technology is developing rapidly, so even if point one is met in the not-too-distant future, points 2 and 3 are impracticable for the foreseeable future.

We strongly believe that CARB should not rush to implement the overly aggressive standards outlined in the draft under the premise that it may be painful, but commercial harbor craft business entities and their customers will somehow adapt. The fact is, it will be catastrophic for most, if not all the small business concerns as well as the communities and customers they serve.”

Response 3365.2: No change was made to the Regulation Order in response to this comment. See Response 3158.34 et al.

The cost analysis did not factor in companies’ existing loans. Please refer to SRIA on the Cost Analysis details.

CARB staff committed at the March 24, 2022, Board Hearing to complete a biennial technology and implementation review (see Response 1094.1 et al.)

See Master Response 1 in the Response to Comments on the Draft EA, which discusses CARB staff’s review and assessment of the feasibility associated with the performance standards in the 2022 Amendments. The economic impacts of the 2022 Amendments are discussed in the SRIA and Chapter IX of the Staff Report

Please refer to Response 3158.1 et al. for the provisions including compliance extensions, ZEAT credits and ACE plan options provided by the 2022 Amendments.

Comment 3365.4: “Lastly, we provide many sustainable jobs in the Southern California region, we are a union signatory company, and we are critical infrastructure serving DoD, MARAD, the Marine Highway, CPUC, POSD Terminals, shipyards, environmental and disaster response such as critical support during the recent fire onboard the USS Bonhomme Richard, and many more. The impacts of the proposed CARB regulations, whether intended or not would not only put our company at great risk but will also put our employees and the community at large at risk.

We hope the Board will grasp how devastating these proposed regulations will be for the industry if implemented in their current form, and we sincerely hope that they will consider our concerns and moderate their approach in a way that achieves clean air goals without burdening commercial harbor craft companies to such an extent that puts their viability at risk.”

Response 3365.4: Please refer to Response 1430 for the impacts to the State’s economy from the 2022 Amendments.

Please refer to Response 3170.6 for construction industry impacts from the 2022 Amendments.

Please refer to Response 3158.1 et al. for the provisions including compliance extensions, ZEAT credits and ACE plan options provided by the 2022 Amendments.

Comment 3397.3: “Loss of a company such as Westar will directly impacts the maritime supply chain issues for the State.”

Response 3397.3: Please refer to Response 1430 for the impacts to the State’s economy from the 2022 Amendments. In regard to infrastructure concerns or supply chain issues, the 2022 Amendments provide compliance extensions for infrastructure delays or equipment installation delays. See Response 2617.3 and Response 3105.1 for more information regarding these compliance extensions.

Also refer to Response 3158.1 et al. regarding flexible compliance pathways and Response 1094.3 et al. regarding funding.

The commenter does not provide any further detail substantiating how supply chain issues may be impacted, therefore CARB staff can provide no further response.

Comment 3402.2: “Tugs, towboats, and barges are part of the nation's critical infrastructure and I don't want to bury the lead. This rule will disrupt and already supply -- strained supply chain and devastate a critically important part of California's infrastructure, the workhorses of the working waterfront that supply Californians with their groceries and fuel. If you think times are tough now with (inaudible), in the market, wait until we all feel the pain that this rule will bring.”

Response 3402.2: See Response 3397.

Comment 3417: “Good morning. My name is Kristin Joseph and I represent R.E. State Engineering.

R.E. State is a small family-owned heavy marine construction company headquartered in San Diego.

The proposed CHC amendments impact every single piece of marine equipment we own. So needless to say, we've been an engaged partner in the review process. We've provided detailed comments to staff throughout the process as well as to the Board in November, but we still feel like our concerns have not been adequately addressed. They include allowing reasonable time for upgrades and extensions, providing funding for upgrades, and providing flexibility and grant application requirements. We'd like to see incentive-based compliance, so something like the DOORS Program, and we'd like a small business phasing plan included that allows for more time for small businesses.

In addition to the items that we just listed, we'd like to request that CARB staff employ a maritime expert that knows our vessels and their capabilities and can serve as a liaison between stakeholders and CARB staff to assist with the implementation of this new rule.

We would encourage the Board not to improve the proposed regulations today. Although, we do recognize that in the proposed resolution before you today, that there is reso -- language that would allow staff to keep working with stakeholders. If this item is approved today, we would hope that the items I identified can be work through before final adoption."

Response 3417: No changes were made to the 2022 Amendments in response to this comment. CARB staff has included numerous provisions in the Regulation Order for eligible stakeholders in order to provide a number of compliance deadline extensions (some are renewable), an ACE Plan application for greater flexibility on compliance methods utilized by fleet operators (subject to approval by CARB's E.O.), and a ZEAT credit for eligible stakeholders who adopt zero emission technology early that is not already being mandated for compliance in their respective vessel sector. Funding upgrades for engines or emissions-related equipment is beyond the scope of this rulemaking. See Response 3106.1.

The commenter's request to CARB to employ a maritime expert is not directed to the 2022 Amendments or procedures used in its proposal or adoption, therefore does not require a response. However, Resolution 22-6 directed CARB staff to form a technical working group, which will contribute to the biennial technology reviews beginning in 2024.

Delaying the adoption of the Amendments would also delay needed reductions of emissions that harm the health and welfare of Californians that live and work near RCW, and especially near ports and harbors.

See Master Response 1 in the Response to Comments on the Draft EA, which discusses CARB staff's review and assessment of the feasibility associated with the performance standards in the 2022 Amendments. The economic impacts of the 2022 Amendments are discussed in the SRIA and Chapter IX of the Staff Report.

e. Cost Impacts to Individuals

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Summary of Comment 1.3 et al.: Many comments stated sportfishing is already expensive. Some commenters indicated that they spend thousands of dollars on each trip, purchase sportfishing tickets a dozen times a year or more, or come from out of state to fish in California. Commenters indicated that the 2022 Amendments will substantially increase the price of passenger tickets, that most sportfishing passengers cannot afford. Many comments specifically stated that sportfishing ticket prices will be raised by 2-3 times existing prices. Many commenters indicated that they would not be able to afford sportfishing at these higher prices.

Many commenters affiliated with sportfishing and whale watching operations also provided comments indicating the importance of sportfishing to communities, specifically that it provides ocean access to community members. Sportfishing commenters generally stated the following regarding ocean access:

- Provides passengers with food to feed their families. Eating fish from sportfishing trips allows customers to know where their food came from.
- Whale watching allows people to be connected to nature, is relaxing, and stress reducing.
- Customers cannot afford their own private vessel for ocean access.
- Some operators perform sea burials, partly as a public service, as an alternative to cemeteries.
- If passengers cannot afford the cost increase to ticket prices, it will limit their access to saltwater fishing, whale watching, and children's science trips. Those on a fixed income cannot accommodate higher prices.
- Sportfishing is an outlet for mental health (popular with veterans, wounded warriors).
- Cub scout trips on sportfishing boats. Eliminating sportfishing would make ocean access something only the wealthy can afford.
- Outdoor activities inspire people to get involved in conservation and limiting access to fishing will lessen the number that understand the impacts of climate change.
- Without fishing some may turn to drug abuse, and others have used fishing to help overcome drug abuse.

- Sportfishing is the only way for community members who are wheelchair dependent to access the ocean.
- Some sportfishing vessels service nonprofits that provide experiences for a variety of vulnerable populations, including children from nearby DACs and other neighboring communities, children with post-traumatic stress disorder (PTSD) and others with disabilities.
- Sportfishing is a safe activity that can be done safely during COVID. It has been difficult to book a fishing trip over the past year.
- The culture of sportfishing is inclusive to all. These boats link people from all ages, races, religions, and political affiliations. Comments from female anglers saying that the loss of access will cut short their efforts at increasing representation of women in fishing and on the ocean.
- Sportfishing keeps kids out of trouble. Recreational sportfishing is a long-standing tradition.
- The California State constitution protects the right to fish.
- This industry helps kids and their parents learn more about the ocean and the wildlife that surrounds them every day, and is a form of therapy that is calming and good for mental health.
- Loss of ocean access is not worth the reduction in pollution.
- Party boat fishing is inexpensive and is enjoyed by a cross-cultural socioeconomically diverse group of people, and this will be lost if the boats disappear.

Some comments indicated that many sportfishing operations are owned and operated by minorities, and the 2022 Amendments could be perceived as discriminatory. Other comments indicated that the 2022 Amendments discriminate against the poor and minority members of portside communities, if access to ocean recreation is lost, specifically regarding sportfishing opportunities. Commenters also noted potential negative impacts to businesses that employ people who live in disadvantaged communities. Sportfishing commenters also claimed that the 2022 Amendments are discriminatory toward small businesses. Many comments indicated that passengers of sportfishing vessels cannot afford their own boats, and if the 2022 Amendments result in fewer sportfishing operations remaining in business, or higher ticket prices, it will have a disproportionate effect on minorities and low-income individuals.

Response 1.3 et al.: CARB staff recognizes that individuals of all income levels may purchase sportfishing tickets. While an increase in prices may discourage some, there is evidence in the public comments that many people spend thousands of dollars per trip, and purchase tickets multiple times a year already, indicating that individuals would continue to do so if prices increase. Additionally, CARB staff calculated that under the original proposal, sportfishing ticket price increases would be approximately 19 to 38 percent higher than baseline per passenger-day, depending on the CPFV category, as documented in Appendix C of the SRIA and updated in the October 1, 2021, Errata document. This ticket price increase is significantly lower than two to three times, as stated by some commenters. In the same analysis, CARB staff estimated excursion vessel ticket prices would be raised by \$1.54 on average, which is a modest increase.

CARB staff recognizes that while the impact on ticket price increases on affordability may disproportionately affect lower-income individuals, DACs would also directly benefit from the reductions of NOx and PM emissions due to the 2022 Amendments. On page II-11 of the ISOR, in section II.C.2., CARB's responsibility to reduce pollution in these communities are presented:

Under AB 617, CARB has been directed to place additional emphasis on protecting local communities from the harmful effects of air pollution (Garcia, Chapter 136, Statutes of 2017). AB 617 requires CARB to pursue new community-focused and community-driven actions to reduce air pollution and improve public health in communities that experience disproportionate burdens from exposure to cumulative air pollutants. CHC typically operate in areas with a high percentage of low-income and minority populations who are disproportionately impacted by higher levels of diesel emissions.

CARB staff's consideration of environmental justice issues in this rulemaking is described in Chapter VIII of the Staff Report. Additionally, please see Response 1.2 et al. and Response 3119.5 regarding the extensions available for passenger-carrying vessels, including excursion vessels. Please refer to Response 1.7 et al. and Response 810.1 explaining the 15-day change that was proposed for the CPFV sector. With the 15-day changes pathway, staff expects technology options for Tier 4 + DPF engines to become available as drop-in replacements that would not require substantially modifying or replacing CPFVs by the time the one-time, ten-year extension expires in 2034. With this pathway, CPFV owners may be able to minimize the changes to ticket prices for the public. The 2028 Midterm Review will focus on CPFV requirements, including impacts to ticket prices that will incorporate information on CPFV service days and passenger days that CPFV vessel owners will be required to report beginning in 2023.

Comment 349: "Please reconsider these excessive and economically disastrous measure. Social equity demands access to ocean resources and viewing of our marine environment. This would raise prices and isolate sensitive groups from their marine resources."

Response 349: No change was made to the Regulation Order in response to this comment. See Response 1.7 et al. regarding the proposed 15-day change for CPFV owners, which CARB staff proposed in response to CPFV stakeholder concerns, including concerns regarding passing costs onto customers. Also see Chapter VIII of the Staff Report regarding environmental justice concerns. In addition, see Response 1.3 et al. regarding ticket price increases.

Comment 1226: "This will make me loose my housing option as I cannot afford to change out my motors and this is my place of residence."

Response 1226: This comment does not provide enough information for CARB staff to provide a response. The comment does not indicate whether the vessel is a recreational vessel, which are not subject to the 2022 CHC Amendments, or specific category of CHC.

See Responses 1.7 et al. and 1.3 et al.

Comment 2365.2: “My neighbors and I travel by ferry to the mainland up to four times per month for trips most people take for granted, like medical appointments, jobs interviews, visits with friends and family, or shopping. In our household there is a heart transplant patient who regularly travels for mainland medical care via passenger ferry. We cannot afford to travel by helicopter or charter boat, and if ferry service is limited and more costly, I may not be able to travel to the mainland as I do now. My daily life will be significantly disrupted. I would likely have to leave my beloved [Catalina] island home, the best job of my life and relocate my family.”

Response 2365.2: Staff calculated an average \$1.84 cost increase per passenger per one-way ticket for high-speed ferries in Appendix C of the SRIA and in the October 1, 2021 Errata document. While this is calculated as a statewide average and not for any specific business or ferry route, the analysis shows that the average expected price increase per one-way high-speed ferry ticket would be expected to be modest.

The 2022 Amendments are not projected to limit ferry service. Additionally, there are incentive funding opportunities available for eligible vessel owners who upgrade their vessels ahead of the required compliance deadlines, and there are feasibility compliance extensions in the 2022 Amendments to allow for more time for compliance in cases of feasibility challenges which will help operators where vessel replacement cannot be afforded. Under the 2022 Amendments, vessels in which repowering engines or installing DPFs would require modifications resulting in a passenger capacity reduction of 25 percent or more would be eligible to receive an additional two-year feasibility extension under Feasibility Extension E3 - Engines or DPF not Feasible and Cannot Afford Vessel Replacement. Also see Response 1.2 et al. and Response 3119.5 regarding the extensions available for passenger-carrying vessels.

Comment 2567.4: “In addition, sportfishing, charter boats, sightseeing and other similar operations provide the only means for those who cannot afford their own boats for a cost-effective way to access, enjoy and learn about our coastal waters, flora and fauna. King Harbor is the only harbor in the 25 miles of coastline between Marina Del Rey and the Port of Los Angeles. With this central location it is a critical access point for a large segment of LA County. King Harbor’s proximity to key fishing and marine mammal areas off of Redondo and the northern end of the Palos Verdes Peninsula adds to the attraction for those who cannot afford their own vessels.”

Response 2567.4: See Response 1.7 et al. regarding the proposed 15-day change for CPFV. Additionally, feasibility extension E3 provides a pathway for eligible excursion vessel owners to apply for two-year compliance extensions (up to 8 years total). See Response 1.3 et al. regarding ticket price increases.

Comment 2588.9: “It is also important to note that recreational boats are exempt from these proposed rules. Thus, under the proposed rules, yachts of all sizes will still be allowed to operate in California waters. Many of these yachts have much larger engines and burn orders of magnitude more fuel per hour than a typical CPFV. For most Californians, CPFVs are one of the only ways to access the ocean. This rule will make it the exclusive domain of a very small minority of economically privileged Californians.”

Response 2588.9: While recreational vessels are exempt from the CHC Regulation, CARB does regulate exhaust emissions from spark-ignition watercraft. See Chapter I of the Staff Report. Additionally, the definition of “Recreational Vessel” in the Regulation Order excludes vessels of less than 100 gross tons that carry more than 6 passengers, vessels of 100 gross tons or more that carry one or more passengers, and vessels that are diesel-powered that are operated as a charter or hired to carry any number of passengers.

Comment 2619.3: “We have also heard concerns that these proposed regulations could impact the only public passenger service to the Channel Islands National Park, making it nearly impossible for the public to access the park.”

Response 2619.3: See Response 2567.4.

Please see Response 1.2 et al. and Response 3119.5 regarding the extensions available for passenger-carrying vessels.

Comment 3195.5: “CARB conducted no analysis on the profile of anglers or those that go out to observe marine life, and somehow also neglected how cost increases would impact participation. We can assume from CARB’s media statements and lack of analysis that they believe every participant is the equivalent of a bottomless-pocketed millionaire and that price has no impact because participants could afford their own boat anyway. In reality, as noted in the Southwick Associates Report, the USFWS found that 43% of anglers make less than \$75,000 per year, the same as the general population. The Recreational Boating and Fishing Foundation found that Hispanics are the fastest growing segment among anglers with a 55% increase in the last 10-years. This means those accessing the ocean through CPFVs are likely to be reflective of California’s population and income levels generally.”

Response 3195.5: See Response 1.7 et al. regarding the proposed 15-day change for CPFV owners, which CARB staff proposed in response to CPFV stakeholder concerns, including concerns regarding passing costs onto customers. Also see Response 1.3 et al., and the Cost to Individuals Analysis in SRIA Chapter C. (in Appendix C-1 of the Staff Report, and updated in the October 1, 2021 Errata document), which quantifies the expected ticket price increase for CPFV under the original assumption that 99% of CPFV would need to be replaced. CARB staff anticipates the ticket price increase would be lower than previously quantified if CPFV owners choose the one-time, ten-year extension pathway.

There were instances where CARB staff reached out to industry to request information and did not receive a response; however, staff included all data received from industry throughout the cost analysis, as described in Appendix A to the SRIA.

Comment 3195.7: “And because the incomes of ocean access participants – particularly in angling – reflect the income profile of the public generally, cost increases will have a noticeably graver impact on lower income populations in California that are disproportionately ethnic minorities. Given the most significant increases in anglers during the COVID pandemic were minorities and women, these groups would likely be the first to experience reductions in ocean access due to affordability.

The fleet also actively participates with creating ocean access opportunities for Title 1 school children, at-risk youth, veterans, the physically or mentally challenged, and others that

otherwise would not be able to participate. Partners include schools, elected officials, nonprofit organizations, maritime museums, and ethnic organizations. As an example, Fish for Life has served over 175,000 youth along the southern coast of California by providing marine education and subsequent trips, which are often the children's' first experience on the ocean.

Although SB 617 requires CARB to consider nonmonetary factors such as fairness and social equity, CARB has made no effort to consider the impacts of the proposed rule in this regard. Equitable access to our oceans and the reach of the programs that promote social justice and opportunity will be devastated by the economic barriers the proposed rule creates. This is a substantial and critical failure on behalf of CARB."

Response 3195.7: No change was made to the regulation in response to this comment. CARB staff disagrees with the assertion it has made no effort to consider the impacts of the 2022 Amendments on issues of fairness and social equity. See Response 1.7 et al. regarding the proposed 15-day change for CPFV owners, which CARB staff proposed in response to CPFV stakeholder concerns, including concerns regarding passing costs onto customers. See Chapter VIII of the Staff Report regarding environmental justice concerns. Also see Response 1.3 et al.

Comment 3195.43: "CARB Has Not Assessed and the Proposed CHC Regulations do not address the Likely Adverse Impact to Ocean Access for Marginalized Individuals and Groups

The CPFV fleet provides a service to underserved communities, people of color, lower economic communities and a general diverse public by providing affordable ocean access. They also work with schools and non-profits to facilitate ocean access and learning about the marine environment. The raising of ticket prices, which will be necessary to comply with the rule, would be so substantial that these various underserved communities would not be able to afford to take their family aboard the CPFVs (or such vessels would be put out of business, effectively eliminating access), and it would limit school and non-profit opportunities for ocean access.

In this age of ensuring equitable ocean access to all communities within the state, the result of the removal of CPFV vessels from service and/or the raising of the prices substantially would limit access to many, with the disadvantaged communities and those who fish for sustenance suffering the largest impact. CARB makes no effort to assess the impact of the elimination of ocean access on marginalized communities, school children, non-profits, research operations, and people of color. The California DFW has information on the ethnic composition of anglers using CPFVs based on license sales; this information should have been used by CARB to analyze this issue. This is a major social justice issue that CARB has not considered or included in its analysis."

Response 3195.43: See Response 3195.7.

Comment 3195.68: "Basic demographic data are shared first:

- The U.S. Fish and Wildlife Service (USFWS) reports 43 percent of anglers had an average household income under \$75,000, identical to the average U.S. household (43%).

- Likewise, according to the USFWS, 48% of anglers were under the age of 45, while 47% of the U.S. population was under 45 years of age.
- While anglers are under-represented among Hispanics, the Recreational Boating and Fishing Foundation (RBFF) reports Hispanic participation is growing rapidly, with 13% having participated in fishing in 2020, the highest participation rate yet recorded. Nearly one in 10 Hispanics participated in fishing for the first-time last year. In the past ten years, the number of U.S. Hispanics who went fishing grew 55% from 3.1 million to 4.8 million.

A common misperception is anglers are disproportionately wealthy and will accept higher prices to continue to fish. The Federal statistics shared above show anglers are not wealthy compared to the U.S. population and likely comprise just as many young families as found anywhere else. Considering prices for boats that can safely access the ocean generally start at \$75,000, the only affordable means for many lower-income segments of California’s communities to access the ocean are via CPF vessels. Expecting lower-income communities of California to bear severe price increases and not decrease their use of CPF vessels is certainly not reasonable.”

Response 3195.68: See Response 3195.7.

f. Extensions and Exemptions

(1.5) (20.3) (44.1) (94) (109.1) (125.1) (136) (150) (152) (164) (169) (334) (351) (359) (361) (388.1) (389) (390) (396) (405.2) (406) (415) (474) (488.6) (503) (511) (514) (515) (552) (559.2) (579) (638) (648) (663) (664) (690) (698) (702) (712) (758) (797) (802) (804) (806) (814) (845) (904.1) (915) (919) (920.1) (946) (951) (959.2) (981.2) (995.2) (1020.3) (1031.3) (1081.1) (1082) (1124.3) (1135.1) (1195) (1212) (1217.1) (1238) (1239) (1261) (1282.2) (1335) (1336) (1337.2) (1401.1) (1408) (1415) (1424) (1426.1) (1448) (1454) (1458.2) (1495.2) (1511) (1529) (1548.1) (1553.2) (1555.4) (1567.1) (1580.1) (1591) (1592) (1663) (1667) (1668) (1780.3) (1787.9) (1788.3) (1793) (1827) (1832) (1849) (1870) (1875) (1891) (1909) (1928) (1938) (1967) (1969.3) (2006) (2051) (2127) (2128) (2168) (2181) (2204) (2231) (2258) (2265) (2266) (2267) (2303) (2304) (2434.4) (2436) (2481.2) (2525.5) (2562.2) (2565.3) (2566.1) (2589) (2599.3) (2629.3) (2639) (2663.1) (2689) (2711) (2720.2) (2726) (2742) (2765) (2771.2) (2819) (2841.3) (2847.2) (2921.2) (2951.3) (3013.2) (3016) (3068) (3084) (3089) (3109.1) (3126) (3137) (3141) (3278.2) (3286.1) (3314.3) (3317) (3365.3)

Summary of Comment 1.5 et al.: Sportfishing and whale watching vessel operators indicated that they need more or unlimited time to comply with the 2022 Amendments until the technology exists and is available. Commenters requested CARB staff to revise the rule to allow phased changes over time allowing sportfishing vessels to continue operating, and to revise the rule to allow existing engines to be used for their entire useful life before replacing. Commenters also suggested to phase in requirements based on size of boats and size of fleet, or to grandfather in existing boats, and make the requirement for new boats only. Commenters suggested to delay implementation of the proposed regulation, or to give existing vessels 15 years since their last major overhaul or replacement to upgrade. Many commenters expressed concerns about stranded assets, should the rule be amended again in the future to require zero-emission technology. Some comments indicated that there is a

carbon footprint involved with building an entirely new motor and disposing of the old that wouldn't exist if the existing motor were used for its expected lifespan. Other comments indicated that supply chain delays will necessitate additional compliance time. Comments also specifically requested that extensions be given to the Catalina Express Ferry until they can obtain funding to purchase suitable ferries.

Response 1.5 et al.: As described in Chapter II of the Staff Report, near-term emission reductions are needed to reduce the uncompensated health and environmental costs to communities in California near where harbor craft operate, as well as people living and working miles away. Chapter VIII of the Staff Report specifically addresses the need for near-term emission reductions in DACs.

See Response 1.7 et al. regarding the 15-day change CARB staff proposed to give CPFV a one-time, ten-year extension pathway for compliance. See Responses 3158.1 et al. and 3119.5 regarding flexible compliance pathways and available extensions for all vessel categories including ferries, which could be eligible for 2-years of extensions for up to eight years total. See Master Response 1 in the Response to Comments on the Draft EA regarding CARB staff's review and assessment of feasibility of the performance standards. See Master Response 4 in the Response to Comments on the Draft EA regarding indirect impacts. See Master Response 5 in the Response to Comments on the Draft EA regarding stranded asset concerns.

Comment 1063: "A marine Diesel engine is designed to last 20 or more years. The timeline you have set is the set is equal to replacing your cellphone every 8 months."

Response 1063: CARB enacted the CHC 2022 Amendments to regulate and reduce air pollution emitted from CHC that adversely affects the public health and welfare of California's residents. The Tier 4 Engine emission standards introduce substantial reductions of NOx and PM comparing to other Engine Tiers. Early engine turnovers for the lower-tiered (higher-polluting) engines are necessary to reduce the emissions and protect public health (Please refer to Regulation Order for engine compliance schedule). Staff did a cost benefit analysis for the 2022 Amendments in the SRIA (see Staff Report Appendix C-1). The health benefits of the 2022 Amendments (\$5.3 Billion) would far outweigh the cost of the compliance costs (\$2 billion) statewide.

Staff has included numerous provisions in the Regulation Order to provide compliance flexibility and extend engine useful life such as provide a number of compliance deadline extensions (some are renewable), an ACE Plan application for greater flexibility on compliance methods utilized by fleet operators (subject to approval by CARB's E.O.), and a Zero Emission Advanced Technology (ZEAT) credit for eligible stakeholders who adopt zero emission technology early that is not already being mandated for compliance in their respective vessel sector. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply without upgrading to the proposed performance standards.

Comment 1466.2: "I ask that you consider a step-wise approach to achieving CARB's mission and goals. Implementation of new regulations must be incremental so as to provide reasonable time and opportunity for compliance."

Response 1466.2: See Response 3158.1 et al. regarding compliance deadline extensions, ACE plans, and ZEAT credits which provide flexibility in compliance methods, and Response 1063 regarding the need to reduce emissions from CHC.

Comment 1685.1: "We checked with CARB on multiple occasions and were told repeatedly that YES, our existing Series 60 engines would continue to be compliant in the future.... Suddenly, CARB decides it wants to change the rules on him and everyone else in the Commercial Sportfishing Industry. In his case, because he can't get funding from the State and no bank is going to be willing to help, he will be out of business and 10 to 12 people will lose their jobs."

Response 1685.1: As a threshold matter, the commenter does not specify the dates of the prior interactions with CARB staff occurred, whether any of those dates were prior to or subsequent to issuance of the notice of public hearing for the Amendments. As explained in Chapter II of the Staff Report, the 2022 Amendments are necessary to provide near-term emissions reductions to protect communities near harbor craft activity. Additionally, in response to cost-related concerns from the sportfishing industry including that most CPFV would have to be replaced to comply with the proposed performance standards, CARB staff made 15-day changes to provide a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024. See Response 1.7 et al. discussing the 15-day change.

Comment 2360.2: "Boat owners will go out of business because they will not want to put millions of dollars into boat modifications which are only temporary until CARB lowers the emission standards to zero in 2025. CARB should lengthen the timeline for modifications of existing engines at least until the modifications actually exist."

Response 2360.2: No changes were made to the Regulation Order in response to this comment. It is incorrect that CARB will lower emissions standards to zero in 2025. The Board has directed CARB staff to report on commercial availability of technology biennially beginning in 2024, and develop a Midterm Review (which is a report, not a rule development) on CPFV requirements in 2028. See Master Response 5 in the Response to Comments on the Draft EA discussing more stringent requirements. Also see Master Response 1 in the Response to Comments on the Draft EA discussing CARB staff's review and assessment of the feasibility associated with the performance standards. See Response 1063 regarding the need to reduce emissions from CHC.

Comment 2617.3: "Extension E1 Must be Eligible so Long as Conditions Exist

The compliance extension of up to two years for shore power and ZEAT infrastructure delays under Extension E1 is certainly appreciated but may not provide adequate time. As Extension E1 is for unforeseen circumstances outside of the owner's or operator's control, the extension should not expire so long as adequate documentation confirming the circumstances still exist and mitigation efforts are attempted in good faith."

Response 2617.3: CARB staff made no changes to the Regulation Order based on the received comments. Extension E1 provides flexibility for operators experiencing infrastructure delays, while incentivizing a quick resolution to the delays by only allowing one renewal and requiring documentation of efforts to mitigate future need for the extension.

Comment: 2617.4: “The Feasibility Extension Must be Inclusive

The feasibility of meeting performance standards does not change based on location of the home base, thus, the operational thresholds to secure an extension based on true feasibility cannot be based on proximity to a Disadvantage Community (DAC) as no justification exists. Halving the operational hours to 1,300 per year is nonsensical under Extension E4.”

Response 2617.4: CARB staff made no changes to the Regulation Order based on the received comments. Extension E4 applies to vessels operating with Tier 4 engines that do not have fitment for a DPF and operate under 2,600 hours per year, or 1,300 hours per year if operating near a DAC. CARB staff carefully considered the effects of compliance extensions on DACs and believe lowering thresholds of annual hours of operation for extension E4 and low-use exemptions will help offset the disproportionate pollution burden these communities have faced historically. In addition to these pathways, the ACE plan and ZEAT credits also have considerations to ensure that there are no increased impacts to DACs.

Comment 3105.1: “Under the proposed new regulation, the District’s fleet of seven ferry vessels will have compliance years ranging from 2022 to 2027. Repowering three vessels and replacing four vessels over this five-year timeframe risks significant interruption to the District’s public ferry services. The District will be forced to balance biennial regulatory dry dockings, unplanned dry dockings, and vessels removed from service for repower while still maintaining the same level of public ferry services necessary to remove congestion on the Highway 101 corridor.”

Response 3105.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding compliance deadline extensions, ACE plans, and ZEAT credits which provide flexibility in compliance methods.

The 2022 Amendments specifically include Extension E5, which provides flexibility for operators experiencing manufacturing or installation delays, including delays related to shipyard capacity or operators who have multiple engines with the same compliance date or multiple engines on a single vessel with different compliance dates. This extension will apply to applicants that ordered the engine or equipment at least 6 months prior to compliance dates, and the equipment has not been received or installed due to manufacturing delays. This extension will prevent operators from having to take multiple vessels out of service at the same time or taking one vessel out of service more than once for compliance-related activities.

Comment 3118.1: “Specifically, we urge CARB to replace this flawed rulemaking with a new approach that would:

- Create more aggressive emission reduction goals but set compliance deadlines further into the future so that companies have time to accommodate new technology.”

Response 3118.1: No changes were made to the Regulation Order in response to this comment. As explained in Chapter II of the Staff Report, the 2022 Amendments are necessary to provide near-term emissions reductions to protect communities near harbor craft activity. In addition, the commenter has not explained how an extension of compliance deadlines can rationally result in more aggressive emissions reductions. See Response 1094.1 et al. for information on the biennial Technology and Implementation Review.

Comment 3118.8: “The regulation would impose unreasonably high compliance costs and create waste by forcing vessel operators to replace or retire relatively new, clean, and operable engines and vessels. In the towing industry’s experience under the 2009 rule, transitioning a towing vessel from a Tier 0 or Tier 1 to a Tier 2 engine often required a vessel rebuild or engine repower. Because vessels often outlive the useful life of engines, rebuilds and repowers are a normal feature of a vessel’s lifecycle and compliance deadlines under the previous regulation could be effectively aligned with scheduled vessel rebuilds or repowers.

Under the proposed rule, many towing vessels would have to be retired or removed from service in California before the end of the vessel’s or the engine’s useful life because space constraints and other limitations do not allow for the installation of the required equipment on existing vessels. This includes towing vessels in which operators have already made significant investments to reduce emissions and improve air quality. In the 2009 regulation, revised in 2011, CARB stated that once a vessel has been retrofitted with Tier 2 engines, no other retrofit would be necessary. Many of the industry’s recent investments were thus made with the understanding that CARB’s current and forthcoming commercial harbor craft rules would allow vessels to serve out a far greater portion of their useful lives than the proposed rule would allow.

Harbor craft operators typically expect a newly built vessel to have a useful life of 20-25 years. Investment decisions are made with the expectation that they can be recouped over this period. The proposed regulations would dramatically alter this calculus, forcing vessels from service after as little as 10 years, including tugs retrofitted under the previous regulation. Additionally, towing companies that have recently built new vessels with Tier 4 engines would be faced with the possibility of taking these vessels out of service within just a few years to comply with the proposed regulations, attaining a marginal incremental improvement in emissions at the cost of millions of dollars. We are concerned that CARB does not understand how disruptive – and economically untenable – this approach is for towing vessel operators. It is extremely difficult for a company of any size to develop a viable capital plan in an environment with this degree of regulatory uncertainty. Moreover, the net environmental impact of forcing the premature retirement of serviceable vessels and their replacement with newly built vessels (even newbuilds with a lower emissions profile) must be considered as the procurement of materials and disposal of old vessels has a net negative environmental impact.”

Response 3118.8: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. regarding compliance deadline extensions including for feasibility considerations, ACE plans, and ZEAT credits which provide flexibility

in compliance methods. See Master Response 4 in the Response to Comments on the Draft EA regarding indirect impacts.

Comment 3118.15: "A More Holistic, Supply Chain-Driven Approach is Needed"

AWO members are committed to reducing their vessel emissions and lessening their impact on the environment. The most effective approach to emissions reduction begins with recognizing the integrated nature of the maritime supply chain and the roles, interdependency, and limitations of its component parts. Tugboat operators are the individual, end-level users of the kind of engine technology CARB's proposed regulations would mandate and are limited in what they can achieve independently of other actors in the supply chain. For tugboats and other types of harbor craft to successfully comply with aggressive new emissions standards, engine manufacturers must design engine technology that is appropriate for the type of work tugboats are required to perform and port facilities must provide shoreside infrastructure that supports and sustains this new technology. Every part of the maritime supply chain must move together. CARB's proposed regulations would force harbor craft operators to build more advanced equipment themselves, regardless of the availability of supporting infrastructure and in the absence of any meaningful market incentives. This approach is akin to attempting to reduce on-road engine emissions by asking every individual California driver to design an electric car in their garage.

ARB's approach also fundamentally misunderstands the way vessel owners invest in their assets. Towing companies build new vessels at regular intervals and retrofit vessels with new and cleaner engines as they become available and as vessel size constraints allow. The ability to raise and invest capital is dependent on being able to recoup that investment over a vessel's useful life, typically 20-25 years. CARB's incremental approach to emissions requirements undercuts this planning not only by forcing out of California relatively new vessels built with the best engine technology available at the time, but also by cannibalizing the resources companies could otherwise invest in more ambitious future technology. Instead of using revenue from existing vessels to support future investments in zero carbon emissions technology, towing companies would be required under the CARB proposal to devote more resources towards compliance with incremental, interim – but still extremely costly – emissions standards. CARB's regulation would be working at cross-purposes with the state's long-term emission reduction goals.

By extending emissions compliance deadlines, CARB would enable vessel operators to plan for the adoption of technology that achieves more substantial emission reductions, including potentially zero carbon standards. It would allow towing companies that have built new vessels with state-of-the-art equipment to continue operating in California and encourage stakeholders at every point in the supply chain to work together to achieve ambitious goals. This does not mean foregoing progress in reducing emissions in the short term, since companies that build new vessels in the interim will continue to use the best available technology, as required by federal EPA standards and supported by California's existing grant programs that incentivize the adoption of new technologies.

This approach has been working in California for years. California harbor craft operators have long participated in successful, incentive-based air quality programs through CARB and various Air Quality Management Districts, taking advantage of grant and finance plans to

upgrade and improve engines, and achieved meaningful results for California air quality. Earlier iterations of progressively higher voluntary standards have led to successful technology innovations, well-managed industry costs, and substantive air quality improvements.

Crowley Maritime's electric tug eWolf represents one of the many ways that California harbor craft operators are working with the State to achieve emission reductions through innovative technologies. The eWolf is a zero-emissions tug that Crowley expects will begin operations in the Port of San Diego by 2023. It has cost Crowley alone \$18 million to develop, and has received additional grant support from federal, state, and district-level partners. It is just one example of the way the California maritime industry proactively partners with government agencies to develop innovative new technologies."

Response 3118.15: CARB staff made no changes to the Regulation Order based on the received comments. As explained in Chapter II of the Staff Report, substantial near-term emission reductions are needed to meet the 2023 and 2031 National Ambient Air Quality Standards for ozone in the South Coast Air Basin. In addition, emission reductions from CHC are necessary to meet SIP commitments. As noted in Chapter VIII of the ISOR, emission reductions are also needed in DACs that have been burdened by air pollution near ports. See Response 1063 for more details. See Response 3158.1 et al. regarding compliance deadline extensions, ACE plans, and ZEAT credits which provide flexibility in compliance methods. CARB staff appreciates Crowley's commitment to adopting zero-emission technology through its development of the eWolf. Under the 2022 Amendments, Crowley would be eligible to receive a ZEAT credit of seven extra years for another vessel operating in the same air basin.

CARB staff disagrees with the statement "CARB's proposed regulations would force harbor craft operators to build more advanced equipment themselves..." Operators are only required to meet performance standards but may use any emission control strategies to meet those standards. Furthermore, the needed technology either exists now or is expected to be available before compliance dates.

Comment 3119.3: "Implementation timetables are unrealistic and create unreasonable near-term financial burden. Equipment sourcing, shipyard availability and increased costs of new technology should be taken into consideration. The supply chain crisis has only served to exacerbate this issue. The proposed regulations accelerate our new build program to a schedule that, as a practical matter, is unattainable; requiring the construction of 3 vessels by year-end 2024, 1 by year-end 2025 and 1 by year end 2028. Schedule and sourcing challenges aside, compliant equipment adds additional \$10.5M in construction costs (25% higher) resulting in a \$45M build program that creates significant financial hurdles given all these constraints.

Further to this issue, as a matter of policy, regulatory implementation schedules should be feasible as published vs a shadow system of granting extensions with the associated burden and uncertainty of multiple extension applications."

Response 3119.3: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. and Response 3105.1. The criteria associated with each extension is clearly set forth in the 2022 Amendments.

Comment 3119.5: "There are significant engineering challenges in retrofitting new technologies into existing vessels and from a financial perspective, the investment cost of new technologies does not warrant conversion of older vessels. Simply put, service appropriate Tier 4 engines and associated equipment are too large to be installed in existing engine spaces and the weight is not compatible with the hull construction parameters. Therefore, the default outcome is vessel replacement which comes at a significantly higher cost and construction/financial planning horizon."

Response 3119.5: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al.

CARB staff disagrees that all in-use vessels would require replacement in order to install Tier 4 engines with exhaust aftertreatment. Please review Appendix E to the ISOR, Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, Chapter IV on page E-39.

Please review CSU Maritime Academy's 2019 Tier 4 Feasibility Study, Evaluation of the Feasibility and Costs of Installing Tier 4 Engines and Retrofit Exhaust Aftertreatment on In-Use Commercial Harbor Craft, posted on CARB's CHC Website.

The 2022 Amendments specifically include Extension E3 which provides a two-year extension if a repower or retrofit is infeasible for a vessel and the operator cannot afford a vessel replacement. This extension is renewable twice (maximum of 6 years) for pilot vessels, which would apply to this commenter if eligible. The extension is renewable three times (maximum of 8 years) for passenger-carrying vessels with early compliance dates.

Comment 3147.3: "The biggest hurdle the proposed concepts poses for Sause Bros. is the timeline to repower our ocean going tugs, home ported outside of CA. Even if the engineers and naval architects are able to find a way to fit a DPF unit into these tugs Sause Bros. would be unable to meet the proposed timeline. Under CARB's proposed concept the Chinook, Cochise, Klihyam and Mikiona would all need to have their main engines repowered by 12/31/2024.

It is not easy to replace main engines. It involves months of planning in addition to 3-6 months to repower. One of our vessels is currently having the very smallest of our main engines (12 Cylinder 1800 RPM) removed to be rebuilt. It had to be substantially torn down prior to removal. This requires that Sause Bros. to totally disassemble the factory assembled and bench tested rebuilt engine to then be re inserted. Without significant deconstruction of the house and vessel we find it cost and time prohibitive to remove and install new equipment only to find that displacement and ancillary equipment on many of the new Tier engines has grown to meet both emission and HP requirements."

Response 3147.3: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. on compliance deadline extensions, ACE plans, and ZEAT credits which provide flexibility in compliance methods and

Response 3105.1 regarding Extension E5, which provides flexibility for operators experiencing manufacturing or installation delays, including delays related to shipyard capacity or operators who have multiple engines with the same compliance date or multiple engines on a single vessel with different compliance dates.

Comment 3158.9 & 3378.10: "Our most pressing concern with the Proposed Amendments is that there is not enough time or funding available and dedicated to have all of our engines up-tiered to Tier 3 or 4 plus a diesel particulate filter (DPF) by the proposed compliance dates. The compliance dates are unattainable and unrealistic for our small business.

The marine industry, and R.E. Staite in particular, have made significant good faith investments in upgrading vessels to meet the current CHC regulations. Since the initial CHC regulations were adopted in 2008, the industry has had time to plan for improvements, industry has had technology that was known and available for installation, and industry was told that once the changes were made that we would be in compliance, allowing the industry to amortize the upgraded equipment over a longer period of time. Even with time and technology on our side, it has not been an easy task. We have replaced 27 of our engines, most at our own expense. Our equipment has been repowered with the majority of our engines upgraded to Tier 2 and Tier 3. We have some Tier 4 engines and also some engines that are registered as use. To comply with the CHC Proposed Amendments means starting over with repowering our fleet. In order to repower our fleet we will need time to:

- Research Equipment Options
- Perform Marine Architecture Studies
- Schedule Vessels for Dry Dock
- Plan for Funding / Obtain Loans
- Apply for Grants
- Plan for Work and Equipment Availability

Repowering a marine engine is not a small task All of the tasks identified above are substantial and will take time to complete before an engine can be repowered and be back in service. Compliance with Executive Order N-79-20 is NOT FEASIBLE AND NOT COST EFFECTIVE."

Response 3158.9 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. and Response 3105.1.

Comment 3158.11 & 3378.12: "C. IMPLEMENT INCENTIVE BASED COMPLIANCE (FLEET AVERAGING / BEST AVAILABLE CONTROL TECHNOLOGY (BACT))

The compliance tables in the CHC Proposed Amendments require that engines be replaced based on their model year. This does not give a company any discretion, other than using a low use waiver, to decide when equipment should be upgraded or taken out of the fleet for improvements. In our case, just based on model years, we will have two of our largest tug boats, the workhorses of our fleet, needing to be dry-docked the same year. Basing upgrades on engine model years does not afford an Owner any control over his assets or his ability to use his owned equipment as an advantage when bidding projects. RES is located within a Disadvantaged Community (DAC), which further penalizes our company by slashing

low use hours by half of other vessels in other parts of the state. An incentive-based compliance system would be welcome.

D. CARB Off-Road Diesel Program (DOORS)

CARB has another program that has a similar goal of removing the dirtiest engines out of circulation under its Off-Road Diesel program. The Off-Road Diesel program uses a method called fleet averaging and Best Available Control Technology (BACT). The DOORS program (the name of the Off-Road compliance program) allows companies to meet a fleet average each year. If they are not able to do that, they are responsible for meeting a Best Available Control Technology (BACT) target. The average and the target are reduced each year until the goal is met at the end of the compliance period. The fleet averaging/BACT allows a company to strategically phase their replacements so that if you need to keep an older engine running, you can, BUT, but you may have to make other choices about vessel upgrades to offset that choice, such as upgrading another (or several) vessels to Tier 4 technology, or perhaps retiring a vessel so that you meet your average or target each year. BACT credits are awarded for early compliance and those credits can also be used to phase in the other vessels. This program has different target dates for large, medium and small companies, so that the less horsepower a company has, the longer the compliance period, acknowledging that different sized companies have different thresholds for sustainability. The result of using fleet averaging/BACT is the same as using a compliance table, but in a way that allows a company more control over how it is accomplished.

E. SMALL BUSINESS PHASING

The proposed regulations make no concessions for a small business to remain competitive with the larger companies. In fact, the way the compliance is set up, the small businesses will likely be the first to go out of business. As suggested Section III-D above, allowing for a small / medium / large category for business size based on total CHC horsepower along with the fleet averaging / BACT compliance methods would allow for small businesses to upgrade to cleaner technology while still remaining competitive.”

Response 3158.11 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al., Response 3119.5, and Response 3105.1.

The ACE compliance pathway allows for the use of fleet averaging or other emission control strategies an operator can utilize to decrease emissions. As part of the ACE application, an operator must demonstrate that DACs will not experience increased health burdens from the implementation of the ACE, otherwise any emission control strategies not otherwise required by the 2022 Amendments would be valid strategies for an ACE plan.

Regarding small business considerations, Extension E3 in the 2022 Amendments provides flexibility for businesses that cannot afford replacement vessels, such as small businesses. In addition, compliance fees are lowered for single-vessel fleets.

Comment 3160.2: “However, the most significant near-term impact will be to change to the Low Use Exemptions prior the industries, including Hornblower, rebound from the devastating impact of COVID. With sustainable economic conditions not expected until 2025, delaying the implementation of the new Low Use Exemption levels for a period of 24 months

would greatly benefit vessel owners and operators without significant impact due to the limited hours of operation.”

Response 3160.2: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1.2 et al., Response 724.4, and Chapter VIII of the Staff Report.

Comment 3165.1: “CCE is committed to achieving zero-emissions from its vessels as soon as feasible. At least one smaller ferry which is scheduled to operate soon in the Bay area will run on green hydrogen. Rather than impose an infeasible mandate forcing CCE to convert to Tier IV, it makes more sense for CARB to team with CCE to become the testing ground for zero-emissions technology for larger ferries like the ones we operate. Allowing CCE a longer compliance path will avoid the negative consequences of disrupting transportation to and from Catalina Island and, (on the heels of the pandemic,) harming Catalina’s tourism economy. Instead, we encourage you to embrace a better and bolder alternative. A Better Alternative CCE believes that, working with CARB staff and new technologies, we can achieve a better compliance path that will result in some immediate emissions benefits while ultimately resulting in our fleet achieving zero emissions within a decade. First, CCE will immediately convert to using renewable diesel yielding significant and immediate emissions reductions.

Second, CCE will work with CARB and new technologies to develop the use of green hydrogen, electric, or some combination of the two, to upgrade the CCE fleet in a reasonable time. While these technologies have not yet progressed to the point needed (given the size and speed of Catalina ferries), such technologies are not that far off. Already there are pilot projects for smaller vessels involving electric and green hydrogen technologies. More companies are also now offering green hydrogen for transportation fuels in California. This signals that CARB has an opportunity to show its leadership in developing a zero emission solution for the marine transportation industry by assisting the private sector to develop such technologies. Third, CCE will work with local shipyards to develop and build zero-emission vessels here in California, creating a new, green shipbuilding industry, more jobs, and economic opportunity for all Californians. While the prospect of a zero-emissions ferry fleet is on the horizon, so is the harm that would be caused if CARB does not allow sufficient time for CCE to achieve this goal without allowing costly and infeasible Tier IV standards to prevent this “small” company from reaching a much better environmental goal.”

Response 3165.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al. and Response 3158.11 et al.

To further clarify, deploying zero-emission vessels where not required by the 2022 Amendments could be a valid strategy in an ACE plan or could allow the operator to take advantage of ZEAT credits to apply to another vessel.

See Response to Comment 3165-1 in the Response to Comments on the Draft EA.

Comment 3165.5: “The primary concern with the proposed regulations is that the weight and size of the new engines (Tier IV) will require complete rebuilding of existing vessels while

significantly reducing passenger loads. We ask CARB to take the longer view of embracing a zero-emission future and partnering financially with the private sector to convert the Catalina ferry fleet to 100% clean engines in a reasonable time period. CCE operates a fleet of eight ferries. Below is a summary of the vessels in our fleet and when retrofit or replacement requirements would take effect without an extension.”

[See Appendix B for Table provided in Comment #3165.5]

Response 3165.5: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al., Response 3158.11 et al., and Response 3165.1.

Furthermore, the 2022 Amendments specify that passenger reduction greater than 25 percent and vessel length modifications are not considered feasible modifications. This along with demonstrated inability to pay for a vessel replacement will qualify an operator for Extension E3.

See Response to Comment 3165-3 in the Response to Comments on the Draft EA.

Comment 3165.11: “CCE will need until at least 2029 to have a realistic chance to convert to zero-emission technology and bypass the financially and technically infeasible Tier IV standards. We believe the current regulations may provide that potential path: Tier II, Tier III, and Tier IV engines on ferries (except short run) and tugboats would have compliance dates between 2024 and 2029 to meet the Tier III or Tier IV plus DPF emissions performance standards. To get sufficient extensions to achieve the 2029 extension, CCE would have to demonstrate a lack of feasibility. As currently defined in the regulations, and discussed in detail below, CCE can demonstrate that moving immediately to Tier IV is not feasible. First, the engines and DPF’s will not fit in the hulls of our current fleet of vessels without displacing over 50% of passenger capacity. Pouring every penny into Tier IV would eliminate the ability of CCE to finance zero emission technology such as electric, green hydrogen or hybrid technology that is on the horizon. The regulations’ feasibility off-ramp is as follows:

b. Feasibility

The feasibility compliance extension of the Proposed Amendments would provide a renewable two-year extension, for the following circumstances:

- Tier IV engines or DPFs are not available.
- Engines or DPFs will not fit, and a replacement vessel cannot be afforded, limited to six years or to December 31, 2034, except:
 - workboats, which have no limit to the number of extensions; and,
 - ferry, excursion, or CPFVs, which are limited to eight years if they have an initial compliance deadline on or before December 31, 2024.
- Tier IV engines on a vessel have no fitment for a DPF and operate below 2,600 hours/year (or 1,300 hours/year if operating in a DAC).

The proposed regulations provide CCE with a “renewable two-year extension” in circumstances where “engines or DPFs will not fit and a replacement vessel cannot be afforded, limited to six years or December 31, 2034.” Given our inability to afford a Tier IV

retrofit of our fleet (and the passenger displacement caused by retrofits that are after market and do not fit the vessel properly), we believe CCE should clearly be eligible for these renewable extensions. CARB staff has recognized the challenge of affordability for ferry operators: CARB staff anticipates the most common use of the feasibility extension to be for operators that must replace a vessel and cannot afford the cost of a vessel replacement without additional time to secure funding. Under this extension, CARB staff propose no limit to the number of extensions eligible for dedicated workboats, and up to eight years of extensions for excursion, ferry, and CPFVs that have compliance deadlines on or before December 31, 2024, for the reasons discussed in Chapter II.E. For all other regulated in-use vessel categories, this renewable extension may not be combined to exceed six years or extend past December 31, 2034. We ask CARB to support the current availability of extensions to the Tier IV mandate for ferries as a bridge to reaching zero emissions engines.”

Response 3165.11: CARB staff made no changes to the commenter’s request to extend the compliance extensions for ferries. As discussed in Appendix H in ISOR, ferries and tugboats emit significant quantities of emissions, and emission reductions in these categories must be achieved to improve air quality and reduce health risks. See Response 3158.1 et al., Response 3158.11 et al., and Response 3165.1.

Comment 3195.41: “8. The Value of Available “Time Extensions” are Overstated and Misleading

Under the proposed rule, CARB has stated that vessels must be removed from service at the conclusion of any approved extensions. The proposed rule would allow the Executive Officer at CARB to grant up to 6 or 8 years of extension for financial reasons; however, at the end of this period, the vessel would need to be taken out of service if it cannot be retrofitted, which again is highly unlikely for CPFVs. These extensions are available in two-year increments up to a maximum of 6 or 8 years, depending on compliance date, and CARB has to approve the extensions each time based on information submitted by the boat owner.

CARB believes that the additional two-year extension (from 6 to 8 years) that has been offered for a limited number of vessels will solve the economic impact issues under the rule by allowing more time for owners to finance the replacement of their boats. In reality, this change will have no material impact on boat owners. It just delays the inevitable for many, if not most, boat owners who will have to spend millions of dollars on replacement vessels when engine rooms cannot be structurally or safely be modified for larger engines and equipment. Moreover, boat owners should not presume that they could claim every two years that it is impossible to comply for economic or technical reasons. As drafted, the standards for two-year extensions are complex and are designed to evolve as new technology comes onto the market. Every two years from as early as 2023 to 2034 or whenever the 6- or 8-year extensions run out, whichever comes first, CARB will make a discretionary determination whether they believe an existing boat can comply or has to be replaced and whether they agree that you meet the financial impact/affordability criteria. That is, there is no guarantee extensions will actually be granted, and CARB has yet to even publish the criteria it will use to assess these extension requests.

Additionally, CARB indicates that it will cost each vessel owner more than \$61,000 to simply prepare the required documentation to apply for the first two-year extension. Because CARB has presented no criteria, it is unknown how much of this would be a re-occurring cost. And in the meantime, the vessel owner is required to upgrade their existing vessel to Tier 3, likely without the assistance of the CMP, and then scrap or sell that vessel at the conclusion of the granted extension period(s). As noted previously, CPFVs are low margin businesses that have been using grant funds to reduce emissions. Limiting the grant funds and placing a substantial cost burden on vessel owners to simply apply for an extension is not workable. In addition, the vessel owner would need to start constructing the new vessel during this time and making progress payments.

Given the uncertainty of securing extensions, the lead time to construct new vessels and the significant and overlapping economic barriers, CARB has created a false assertion of a path for compliance that will require boat owners to not only retire their boats, but to leave the industry all together.”

Response 3195.41: See Response 1.7 et al. regarding the 15-day change to the Regulation Order providing a one-time, ten-year extension pathway for CPFV meeting Tier 3 by the end of 2024, which was provided in response to stakeholder concerns including the cost of vessel replacement. Under the ten-year extension pathway, by the time CPFV owners would be required to meet the performance standards in 2034, staff expects technology options for Tier 4 + DPF engines to be available as drop-in replacements that would not require substantially modifying or replacing CPFVs as modeled under the original proposal. Furthermore, the extension gives operators 10 years to increase ticket prices and save for upgrades.

Additionally, for vessel owners opting to pursue the 2-year extensions, the 15-day changes added language in subsection 93118(e)(12)(E)3.b.iii. allowing non-vessel-specific third-party naval architect analysis for vessels with hull materials of wood, fiberglass, or fiberglass-reinforced plastic to satisfy the feasibility analysis requirement for the initial two-year extension application, which will reduce the costs needed to prepare documentation for extension costs.

Comment 3195.47: “The Time Extensions Available Under the Regulation are Insufficiently Defined and Could Prove Illusory as a Hedge Against Technological Unavailability and Economic Infeasibility

In CARB’s (Sept. 21, 2021) amended draft regulations, it expanded the possibility of moving the compliance deadline, from three 2-year extensions to four 2-year extensions for some vessels.

Given the uncertainty surrounding technological development, the significant economic impact of purchasing new vessels, impacts to ticket prices and decreased ridership, it matters whether a boat owner could actually benefit from any extension.

Under certain scenarios a vessel owner would have to replace their existing vessel within 6 months. How did CARB determine that a new vessel could be financed, constructed, and deployed within this time frame?

Why did CARB not define the extension criteria to allow a reasonable assessment or forward looking projection by a vessel owner?

What is CARB going to consider in reviewing the financial statements of a boat owner in considering whether to grant an extension?

What is the amount of profit that CARB believes is appropriate for a boat owner? What criteria will be used?

How will "affordability" be defined?

What assumptions has CARB made about ticket price demand elasticity? How high does CARB believe ticket prices can be raised before demand and participation suffer?

Will CARB deny an extension if a boat owner does not raise ticket prices to what CARB believes would be an appropriate level?

What recourse and protection will owners have if depressed demand at increased prices precludes owners from recouping upgrade investment costs?

How did CARB determine that vessel owners can financially afford to upgrade their existing vessels without grant funds (\$350,000 - \$400,000) and spend over \$61,000 to prepare paperwork for the hopes of a two-year extension and finance new boat construction over a similar timeframe?

For vessels that would not have to be replaced within 6-months, how did CARB determine that with nor more than two-years notice that new vessels can be financed, constructed and deployed?"

Response 3195.47: See Response 1.7 et al. regarding the one-time ten-year extension for CPFVs, and Response 1.4 et al. regarding possible decreases in output growth and employment. As stated in Response 1.4 et al., the SRIA acknowledged that business elimination is a possibility if businesses are unable to pass on the costs of the 2022 Amendments to customers.

The 2022 Amendments provide flexible compliance pathways, as described in Response 3158.1 et al. Furthermore, as directed by the Board in Resolution 22-6, CARB staff will conduct a Midterm Review in 2028 and present findings to the Board to track the progress of technology for CPFVs. See Response 1094.1 et al. for more information.

If utilizing extensions, operators must submit applications prior to compliance dates and according to the criteria as specified in subsection (e)(12)(E) of the Regulation Order. CARB staff disagrees with the statement that "under certain scenarios a vessel owner would have to replace their existing vessel withing 6-months." The earliest compliance deadline in the 2022 Amendments is December 31, 2023, and this deadline applies only to pre-Tier and Tier 1 vessels with engines that are model year 1993 and older. Vessels with engines newer than model year 1993 would have compliance deadlines no earlier than December 31, 2024.

Regarding allowing a "reasonable assessment or forward looking projection by a vessel owner," Feasibility Extension E3 (Engines or DPF not Feasible and Cannot Afford Vessel

Replacement) provides vessel owners an opportunity to demonstrate both technological infeasibility to repower and financial infeasibility for vessel replacement.

Subsection (e)(12)(E)3.b.v. specifies that included in the application for Extension E3, an operator must provide: 1) at least three years of federal and State income tax documents, 2) at least three years of Profit and Loss statements.

The compliance extensions are not based on fixed levels of profit or affordability. The tax documents and profit and loss statements will be assessed in conjunction with other information submitted to determine whether replacing an existing vessel with a new vessel is financially possible.

See Response 1.3 et al. regarding ticket price increases.

See Response 3377.1 regarding extensions for shipyard availability and Master Response 4 in the Response to Comments on the Draft EA regarding shipyard capacity.

Comment 3218.4: "The Ports still believe additional time allowances should be given for recently purchased CHC, as harbor craft purchases are major long-term investments that take years to build. As currently written, the regulation would result in stranded assets. As an example, the Ports have newer harbor craft, less than 10 years old that were designed for an approximate 40 to 50-year lifespan. As there is no room to perform Tier 3 or 4 retrofits with diesel particulate filters (DPF) and exhaust gas scrubbers, CHCs with many decades of useful life still available would have to be turned over, making the recent large investment mostly futile.

While there are currently feasibility extensions, these extensions are two-year increments with a maximum of up to six years. This is still not nearly enough time to justify the investment. The as-built lifespans of all vessels should be seriously considered for compliance schedules. Each extension requires extensive research and an analysis from a marine architect. If CARB requires a new analysis from a marine architect for every extension request, as soon as one extension request is provided to CARB, the marine architect would have to start another analysis. Two-year extensions are far too short. CARB should set the extension to 6-year extensions. This reduces the burden for CARB staff to be reviewing multiple extension requests for the same vessels that have the same information and for vessel operators in preparing extension requests. "

Response 3218.4: See Response 3158.1 et al., Response 3299.2, and Response 3165.1.

See Master Response 5 in the Response to Comments on the Draft EA regarding stranded asset concerns.

Additionally, the 15-day changes added language in subsection 93118(e)(12)(E)3.b.iii. allowing non-vessel-specific third-party naval architect analysis for vessels with hull materials of wood, fiberglass, or fiberglass-reinforced plastic to satisfy the feasibility analysis requirement for the initial two-year extension application.

Comment 3256: "I appeal to CARB to reconsider the requirements to repower my 43 foot commercial passenger vessel, as it would put me out of business. My fiberglass vessel will not be compatible with the tier 4 engine. I cannot afford to purchase a new vessel to replace the

one I currently own and operate. Please "grandfather" existing vessels like mine to continue to operate. I currently have tier 3 engines."

Response 3256: See Response 1.7 et al. regarding the 15-day change to the Regulation Order allowing CPFV owners to apply for a one-time, ten-year extension if they have upgraded all onboard engines to Tier 3 by 2024.

Comment 3299.2: "Additionally, the CARB-projected naval architect costs of \$61,000 for a feasibility submission is simply -- I'm sorry, ex -- a extension submission is simple not possible."

Response 3299.2: The \$61 thousand estimate for a feasibility study was conservative if an operator needed to fund their own individual vessel-specific study. In the 15-day change, staff did change the Regulation Order to specify that non-vessel-specific studies could be used to satisfy the analysis requirement for the first two-year extension. Staff has provided owners the flexibility to demonstrate the technical infeasibility of modifying existing vessels by using readily accessible information in lieu of contracting with a third-party naval architect for an individualized assessment for a specific vessel. If applicable for their vessel category, such as sportfishing vessels that cannot be modified due to their wood or fiberglass vessel hull material, an owner could use the study published by the CMA to demonstrate it would not be technically feasible to modify their vessel, assuming no new engines have become certified that change the CMA study's conclusions.

Comment 3312: "And all I ask -- we're all looking to get to zero emissions. We all want to avoid ocean warming. That's our livelihood, but what I would ask is if you at least have less onerous qualifications and processes for extensions. A lot of these boats are 50 years old, fiberglass and wood. There are no easy alternatives for the folks operating them to reach these goals."

Response 3312: See Responses 3195.41 and 3299.2 regarding 15-day changes to the two-year extension application requirements for initial 2-year extensions. Additionally, many fiberglass and wood vessels are CPFV, therefore would be eligible for the one-time, ten-year extension pathway (see Response 1.7 et al.).

Comment 3392.3:

- CARB staff continues to compare tugboats to cars and trucks that have documented lifespans of less than 13 years. Tugboats have an average lifespan of well over 40 years, with engines often last the age of the tug. The regulations for Class 8 trucks take life cycle into account. These trucks were granted a minimum of 9 and a maximum of 16 years from their EMY to implement DPF technology, and 14 – 21 years to upgrade to the latest tier requirements. This against a vehicle life of 13 years. We are only asking for a 25-year compliance date against an average life span of 40 years.
- CARB staff keep pushing that they've offered up to 3, 2-year extensions, potentially giving qualified owners up to 6 years to comply. Unfortunately, 2-year increments do not work for our industry. Developing an approval package for United States Coast Guard and our vessel class society (as required by federal law) takes upwards of a year

to complete. Only then can you begin putting together the final drawings, engineering plans and solicit bids for equipment. This takes months, if not years to implement and then a shipyard must be sourced. As we've explained numerous times, by federal regulation, marine maintenance is generally governed in 5-year cycles and nothing short of a 5-year extension interval will prove helpful to industry. Staff does not understand the impact of trying to install a yet to be designed, much less approved DPF on a vessel only a couple of years of planning time. It is analogous telling someone in Los Angeles that you will provide them 2 hours' notice on when to be in New York City.

Response 3392.3: CARB staff made no changes to the Regulation Order based on the received comments.

CARB CHC Program staff understands that tugboats are not light duty cars or pick-up trucks. The In-Use Rule portion of CARB's current CHC Regulation requires vessel operators to periodically upgrade older higher polluting engines to newer cleaner equipment utilizing a timeline based on engine Tier and model year. Therefore, useful life applies to the engine and not the vessel useful life. Depending on the particular air basin of operation the typical useful engine life in the current CHC Regulation was 13 to 15 years with 13 years applying to engines on most vessel types in the heavily impacted South Coast Air Quality Management District (SCAQMD). The amended Regulation Order is now requiring compliance with a set of In-Use Performance Standards that will apply to In-Use engines based on model years, displacement, and power subcategories. The compliance timeline for pre-Tier 1 unregulated or "Tier-0" engines aboard towing vessels is outlined in Table 16 of the Regulation Order. The compliance timeline for Tier 2, 3, and 4 engines aboard towing vessels is outlined in Table 17 of the Regulation Order. CARB staff has included numerous provisions in the Regulation Order to allow eligible stakeholders to apply for compliance extensions (some of which are renewable) allowing sufficient time for stakeholders to find a compliance pathway.

See Response 3158.1 et al. for more detail on the different compliance extensions and pathways.

See Appendix E: Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, Chapter IV beginning on page E-39.

Comment 3421: "Good morning. Thank you for the opportunity to testify on the draft Harbor Craft Rule. My name is Will Roberts and I am the President of Foss Maritime Company. I also serve on the board of the American Waterways Operators as the Chair of the Pacific Region. In California, we work out of both the Bay Area and LA/Long Beach with over 12 vessels and over 160 employees.

For the last three years, we have met with the CARB staff on the proposed rules. You may be surprised that none of our industry's recommendations are reflected in this draft. While I'd like to be able to cover all of my concerns, I'll instead point to the American Waterways Operators comments, which I support and will highlight what I believe is the biggest issue with this rule. Our industry has a proven track record of adopting the cleanest technology when feasible. My company, Foss Maritime, introduced the first two hybrid tugboats to California in 2009 and '11 and has carbon canister filtration systems installed on our bunker

barge fleet to reduce carbon emissions during load operations, both well ahead had of the regulatory requirements to do so.

Over the last three years, Foss has spent over \$16 million equipping and operating four new Tier 4 tugboats for California. All of these tugboats will now need to be retrofitted. The engineering and upgrades will cost millions of dollars for what are considered some of the most environmentally leading tugboats in the world. We have also upgraded multiple other vessel within our fleet and those will need to be retrofitted as well.

A single retrofit could cost close to \$4 million and a new harbor tug costs close to \$20 million. These are significant investments, which will devastate companies like mine, as we have recently spent so much to retrofit.

My ask is will you create an exemption for vessels currently with Tier 3 and above engines and allow them to operate for their full useful life, with a requirement that they'll be replaced after they're retrofitted?

Please pass this current rule with these critical modifications as to not destroy or already weakened supply chain in California.”

Response 3421: CARB staff made no changes to the Regulation Order based on the received comments. CARB enacted the CHC 2022 Amendments to regulate and limit air pollution emitted from CHC that adversely affects the public health and welfare of California’s residents. The Tier 4 Engine emission standards introduce substantial reductions of NOx and PM comparing to other Engine Tiers. Additionally, a Level III DPF can achieve 85 percent PM reduction. Tugboats are one of the largest emitting categories of CHC for PM2.5 and NOx (see Figure H-14. CHC Baseline Emission Projection by Vessel Type, Appendix H of ISOR). Early engine turnovers for the lower-tiered (higher-polluting) engines and retrofit with DPF are necessary to reduce the emissions and protect public health (Please refer to Regulation Order for engine compliance schedule).

CARB staff has included provisions in the 2022 Amendments for several compliance deadline extensions to allow eligible operators more time to comply. Extensions could provide operators with up to 11 years before equipment must be upgraded. Compliance deadline extensions for eligible stakeholders may provide additional flexibility when applying for grant funding to repower with cleaner compliant engines in that the later deadline may be used to achieve a greater surplus emissions reduction in order to meet the requirements of incentives programs. Delaying the rulemaking or compliance dates will delay much needed emission reductions from harbor craft and, as a result, harm public health and communities burdened by air pollution near ports, marinas, and harbors. (Please also see Response 3158.1 et al. and Response 2617.4).

Comment 3424.2: “As I said on the outset, the towing industry embraces the same goal as the board, zero emissions. Our industry is ready to go to zero emissions as soon as possible, so we respectfully request that CARB vote no on this, and add an exemption to the rule that allows vessels currently with Tier 3 engines or above to operate for the rest of their useful life with the stipulation that they will be retired or become a zero-emission vessel once the

engine's life is up. In fact, we ask also for consideration that has been given to other harbor craft in this today.”

Response 3424.2: CARB staff made no changes to the Regulation Order based on the received comments. CARB enacted the CHC 2022 Amendments to regulate and limit air pollution emitted from CHC that adversely affects the public health and welfare of California’s residents. The Tier 4 Engine emission standards introduce substantial reductions of NOx and PM comparing to other Engine Tiers. Additionally, a Level III DPF can achieve 85 percent PM reduction. Tugboats are one of the largest emitting categories of CHC for PM2.5 and NOx (see Figure H-14. CHC Baseline Emission Projection by Vessel Type, Appendix H of ISOR). Early engine turnovers for the lower-tiered (higher-polluting) engines and retrofit with DPF are necessary to reduce the emissions and protect public health (Please refer to Regulation Order for engine compliance schedule).

Assumptions about whether technology would be available to meet 100-percent zero-emission transition by 2035 would be too speculative to forecast based on the careful design considerations to make Tier 4 and DPF technology feasible on the in-use CHC fleet today, and the marginal weight and volumetric demands required by zero-emission power systems, whether battery-electric or fuel-cell electric as discussed in Table E-29 of Appendix E to the ISOR.

CARB staff has included provisions in the 2022 Amendments for several compliance deadline extensions to allow eligible operators more time to comply. Extensions could provide operators with up to 11 years before equipment must be upgraded. Compliance deadline extensions for eligible stakeholders may provide additional flexibility when applying for grant funding to repower with cleaner compliant engines in that the later deadline may be used to achieve a greater surplus emissions reduction in order to meet the requirements of incentives programs. Delaying the rulemaking or compliance dates will delay much needed emission reductions from harbor craft and, as a result, harm public health and communities burdened by air pollution near ports, marinas, and harbors. (Please also see Response 3158.1 -et al).

g. Vessel Operation Outside of Regulated California Waters (RCW)

(1.1) (428.3) (707) (1088.1) (2472.3) (2889)

Summary of Comment 1.1 et al.: CARB received comments with general concerns related to the amount of time sportfishing vessels operate in RCW. Commenters indicated that many trips leave the harbor and travel well beyond the 3-mile state limits and 12-mile U.S. limits. Commenters indicated that sportfishing boats do not operate year-round and are in international waters 80 percent of the time.

Response 1.1 et al.: CARB staff made no changes to the Regulation Order based on the received comments. Vessels operating beyond the 3-mile state limits and 12-mile U.S. limits are within 24 nautical miles and would be subject to the CHC rule. The 2022 Amendments provide low-use exceptions to the in-use performance standards for vessels whose operating hours within RCW are within the low-use thresholds provided in Table 22 of the Regulation Order, which are based on the different engine Tier levels and whether the vessel operates in

a DAC. The 2022 Amendments also exempt CHC vessels that are traversing through RCW without entering California internal or estuarine waters or calling at a port. (93118.5(c)(1).

Comment 1699.2: "My first point of contention with this proposal is that (at least in my case) it doesn't take into account the amount of time many of these vessels operate within 24 miles of the California coast. My vessel operates in Mexican waters for the majority of its season. When in US waters we are rarely within 24 miles of the coast except when transiting. I would like to see the equation that shows my vessel's contribution to the pollution within this 24 mile zone. I'm sure each vessel owner who is about to see their life's work snatched from them would like to see that equation worked out as well."

Response 1699.2: CARB staff made no changes to the Regulation Order based on the received comments. The emission inventory used AIS to determine the percent of activity within 24 nautical miles and outside of 24 nautical miles. Appendix H of the ISOR described Emissions Inventory methodology and results that rely on the best available data when considering the effects of the 2022 Amendments. CARB staff has met numerous times with industry groups since 2018 to develop the proposed inventory. Table H-4 in Appendix H listed Average Total CHC Annual Hours and Activity Fraction Within 24 nm by Vessel and Engine Type. The percentages of CHC activity spent within 24 nm in RCW were obtained through vessel AIS data. For Sport Fishing category, staff identified a total of 42 CPFVs were selected to represent the CPFV fleet of 352 from AIS data. These data were used to assign the fraction of statewide emissions (83%) that occurred within 24 nm of the coast. Individual vessels may have smaller fractions. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply without upgrading to the proposed performance standards. In addition, the 2022 Amendments also exempt CHC vessels that are traversing through RCW without entering California internal or estuarine waters or calling at a port. (93118.5(c)(1).

Comment 3195.16: "The Proposed Regulations Unreasonably Ignore the Operational Characteristics and Difference in Coastal and (Far) Offshore Operations.

There are two primary operational classifications of vessel in the fleets, coastal and offshore.

From Pt. Conception south, the "offshore fleet" operates outside of state waters and in many cases outside U.S. territorial and contiguous waters. We have many overnight and long-range vessels that spend the vast majority of their running time in transit to, trolling in or drifting on fishing grounds dozens if not hundreds of miles away. These boats travel long distances from port (often in foreign waters and to distant offshore banks).

The second group is the "coastal fleet" with fishing activities, which involve drifting, anchor fishing, and slow trolling with fully engaged propulsion generally activated mostly for traveling to and from port in what are typically 1/2- and 3/4-day fishing trips. They operate in California waters; however, they spend most of their time either anchored without engines running or trolling at low speeds/low engine loads. We do not believe that CARB's analysis has adequately accounted for either classification of vessels."

Response 3195.16: CARB staff made no changes to the Regulation Order based on the received comments. See response to Comment 1699.2.

Comment 3195.26: “It is commonly believed offshore vessels that transit state waters in route to international or foreign waters should not be part of the CHC Rule. These vessels are easy to identify as they are permitted by NOAA as Highly Migratory Species vessels. Those operations generate valuable tax revenue and economic impact to the region and state that could be lost if subjected to the proposed regulations. They operate on the high seas and have minimal impact on the states air resources transiting to the harbors and due to the West-Northwest wind that prevails on approach to, primarily, San Diego. These vessels should be exempted from the rule or a sufficient low use exemption that reflects their operational days and necessary transit times.”

Response 3195.26: CARB staff made no changes to the Regulation Order based on the received comments. Even if the offshore vessels operate in RCW for short period of time, they are still subject to the CHC rule. See Response 1.1 et al. regarding low-use exceptions to the in-use requirements. However, CARB staff agrees that CHC vessels that are only traversing RCW without entering California internal or estuarine waters or calling at a port are exempt from the Amendments. (Section 93118.5(c)(1)).

h. Tier 3 Compliance Pathway

(2.1) (3.1) (12.2) (53.1) (398) (474.1) (696.7) (741) (761) (1296.2) (1366.1) (1433) (1609.4) (2326) (2472.4) (2506.1) (2594.1) (3428.4) (3428.6)

Summary of Comment 2.1 et al.: Many comments from the sportfishing industry indicated that many operators have voluntarily upgraded to Tier 3 and are committed to reducing emissions. Some comments indicated that Tier 3 engines should be granted later compliance dates.

Response 2.1 et al.: CARB staff recognizes that many operators have made voluntary upgrades to cleaner combustion engines. As such, the compliance dates for newer engines, such as Tier 2 and 3, are later than compliance dates for older engines, such as Tier 1 and Pre-Tier. Tier 3 engines also have higher low-use thresholds, allowing 700 hours of operation per year. For CPFVs that have upgraded all onboard engines to Tier 3 by 2024, CARB staff modified the 2022 Amendments to include a one-time, ten-year extension to 2034. See Response 1.7 et al.

i. Funding

(1.6) (6) (25.1) (125.2) (223) (418) (578) (597) (729) (920.2) (981.3) (1042) (1146.2) (1298.2) (1378) (1402.2) (1438.1) (1499.6) (1513.2) (1698.6) (1699.8) (1706.2) (1707.3) (1718) (1740.2) (1747.2) (1760) (1775) (1787.6) (1845) (1855.3) (2105.2) (2146.1) (2292) (2434.3) (2481.3) (2498.3) (2525.6) (2550) (2629.4) (2656) (2663.2) (2683) (2802) (2807) (2810) (2811.3) (2834.2) (2877.5) (3265) (3286.2) (3288.2) (3372.2) (3400.2) (3441)

Summary of Comment 1.6 et al.: Many comments indicated that more funding opportunities are needed to help operators meet compliance. Commenters indicated that building new vessels is too expensive, and unless there are subsidies, upgrades cannot be made. Commenters also stated that grants typically available for vessel owners will not

support vessel replacements. Many commenters affiliated with sportfishing operations suggested that if CARB's actions remove sportfishing fleets from service, CARB must make provisions for replacement vessels of equal quality, range, and capacity to make the sportfishing businesses whole and to fairly compensate fleets. Comments suggested that the government of California could purchase 100 new clean energy boats and divide them among the coastal landings and wharfs, or CARB could offer 0% down loans for compliance. Other comments indicated that the small business operators are not eligible for the same federal funding as large ferry companies, and incentive funding for small businesses is needed to offset costs. Some comments stated the extensions are too short to allow for grants to be used, and upgrades should be voluntary and incentivized. Some comments suggested delaying the requirement while encouraging businesses to upgrade their engines earlier with subsidies, or that owners be granted 0% financing while receiving wholesale rates with extended terms, or a plan that encompassed all options for switching to new engines. Commenters also expressed concerns that once boats are regulated, owners won't be able to apply for grants that typically allow them to make environmentally friendly upgrades.

Response 1.6 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al. regarding how compliance deadline extensions may provide additional flexibility when applying for grant funding. Suggestions made to CARB to provide replacement vessels or 0 percent financing are outside the scope of the rulemaking.

Comment 1017.2: "The state should consider tax incentives for commercial harbor craft to buy engines that meet your proposed emission standards. There is significant income generated from these trips that are taxed. If taxes are waived when a new engine is installed, there is no impact to the business. The taxes to the state are reduced, and while the state may not be able to write a 300 page report + multiple appendices of the same length with significant state hours required to compile and analyze data, the money goes directly to supporting the goal of zero emissions."

Response 1017.2: CARB staff made no changes to the Regulation Order based on the received comment. CARB does not have authority to waive taxes. See Response 1094.3 et al. regarding funding.

Comment 1132.5: "Concerns have been expressed that the proposed regulations will diminish the availability and effectiveness of grant and incentive programs that have been extensively leveraged by vessel operators to fund emission reduction and decarbonization projects that have achieved real beneficial results. These programs must be maintained to assist the regulated harbor craft community in achieving significant and on-going air emission reductions and survive challenging economic times."

Response 1132.5: CARB staff made no changes to the Regulation Order based on the received comment. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for surplus emissions reductions achieved either prior to their compliance deadline, or by adopting cleaner technology than required. See Response 3158.1 et al. regarding compliance pathways. For more on funding, see Response 1094.3 et al.

Comment 1603.5: “If CARB continues with this distinction, we believe CARB should leverage additional state funding to make grants available to small businesses to help them comply with these provisions if we are truly serious about reaching our climate goals without harming local economies.”

Response 1603.5: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1094.3 et al. regarding funding.

Comment 2076.2: “There needs to be a means where the owners of the vessels can receive a no interest business loan and 100% tax credit offset to make conversion feasible.”

Response 2076.2: CARB staff made no changes to the Regulation Order based on the received comment. CARB does not have the authority to provide tax credits. CARB staff recognizes that there may not be enough incentive funding available to cover the cost of compliance for every harbor craft operator. See Response 1094.3 et al. regarding funding.

Comment 2228.8: “However, rather than deny boat owners their livelihood, CARB should consider amending the draft regulations to incentivize boat owners to continue to upgrade their vessels to lower emission engines, using available and tested and feasible technology that does not require vessel replacement. This is the reasonable approach CARB has applied to commercial fishing vessels that bring fish to market, vessels with engines that are technically identical. What’s more, commercial passenger vessels will no longer have access to Carl Moyer funds, a reliable source of state funding for repowering engines – while commercial fishing vessels will. CARB has failed to provide an acceptable answer as to why they have applied a double standard and with it, introduced catastrophic economic consequences for the families that operate passenger boats.”

Response 2228.8: CARB staff made no changes to the Regulation Order based on the received comment. See Master Response 1 to the Response to Comments on the Draft EA and Appendix E of the Staff Report, which discuss CARB staff’s review and assessment of the feasibility associated with the performance standards in the 2022 Amendments. See Response 1132.5 regarding eligibility for funding. The Carl Moyer Program will continue to fund projects that go beyond regulatory requirements to gain early or extra emission reductions. See Response 3338 regarding the difference between CPFVs and CFVs and the 15-day change providing a one-time, ten-year extension pathway for CPFV that upgrade all onboard engines to Tier 3 by the end of 2024.

Comment 2588.6: “Staff assume that conventional financing will be available from financial institutions for new vessel construction. This is not likely to be the case. Banner Bank holds many of the current mortgages in the CPFV fleet, but they have no mechanisms in place for financing new construction. My company and I have excellent credit, but I have yet to find a bank that would finance more than 60% of an existing vessel, let alone finance the construction of a new vessel.”

Response 2588.6: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1.7 et al. and Response 1.3 et al. regarding the proposed 15-day change for CPFVs and how, in the near-future, drop-in repower and retrofit options

may become available that would not require substantially modifying or replacing CPFV as modeled under the original proposal.

Comment 2594.11: "If I do have to dispose of my Investments that I will have worked off for 12 years, hopefully the state will compensate me or help me invest in something new and more California approved"

Response 2594.11: CARB staff made no changes to the Regulation Order based on the received comment. Comments requesting compensation from the state are outside the scope of the rulemaking. CARB staff recognizes that there may not be enough incentive funding available to cover the cost of compliance for every harbor craft operator. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al. regarding how compliance deadline extensions may provide additional flexibility when applying for grant funding.

Comment 2602.6: "CARB also should further delineate the very significant economic impacts that its proposed rulemaking will have on CHC vessel owners and operators. In particular, CARB should clarify the scale and sources of incentive funding that will be necessary to implement the proposed new vessel-replacement mandates in a cost-effective manner. Without very significant incentive funding, the proposed amendments will not be implementable."

Response 2602.6: CARB staff made no changes to the Regulation Order based on the received comment. Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617 and the DOF. The SRIA evaluated the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, gross State product, and output. The compliance cost estimates were conservative, and assumed that operators would not use incentive funding. As we have communicated to stakeholders during workshops, meetings, and Board Hearings, there are a number of incentive programs that may be applicable to harbor craft and can lower compliance costs. See Response 1094.3 et al. regarding funding. See Response 2.6 et al. regarding the economic analysis.

Comment 2602.12: "As noted, CARB will need to identify and implement the necessary incentive programs to cover the significant costs of what could amount to a CHC vessel-replacement program, or to subsidize the installation of Tier 4 or EU Stage 5 engine configurations (certified by US EPA to emission levels below Tier 4 standards) in existing vessels where it is practical. Without those necessary incentive programs and funds, this rulemaking will not be viable."

Response 2602.12: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1094.3 et al. regarding funding.

Comment 3038.4: "There is a clear lack of communication between CARB and local APCD's. Local APCD Carl Moyer Grant programs have very different structures for financing, contract length, and how many components can be funded at one time. The cost associated with upgrading to Tier 3 or 4 is also an extreme economic hardship for our small business, especially since once this becomes a rule, we will no longer qualify for Carl Moyer grant

funding. We also are concerned about the equipment availability. Tier 3 & 4+DPF is not available in a model small enough to fit our vessels.”

Response 3038.4: CARB staff will continue to coordinate with local air districts and communicate funding opportunities to stakeholders. See Response 1.7 et al. regarding the 15-day change providing a one-time, ten-year extension pathway for CPFV that upgrade all onboard engines to Tier 3 by the end of 2024. See Response 1132.5 regarding eligibility for funding ahead of compliance deadlines. See Response 3158.1 et al. regarding pathways to compliance.

Comment 3118.3: “Specifically, we urge CARB to replace this flawed rulemaking with a new approach that would:

- Continue to support existing grant programs (e.g., the Carl Moyer program) that are working well, rather than undercutting them and shortchanging California taxpayers by forcing out of service many of the vessels that have recently undergone retrofits made possible by these very programs.”

Response 3118.3: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1132.5 and Response 3158.1 et al. regarding funding and compliance pathways. See Response 3118.15 and Response 1063 regarding the need for emissions reductions.

Comment 3118.16: “AWO urges CARB both to continue to work with companies to incentivize these types of innovations and to recognize the emissions benefits that new technology provides. Like the Crowley eWolf, Foss Maritime’s hybrid tugs, first introduced in 2008 to the Los Angeles/Long Beach market, offered the promise of using innovation and new technology to reduce vessel emissions. The vessels were built specifically for the heavy workload of LA/LB and the demand for higher horsepower in the tight confines of the harbor. The tugs were effective and provided a model for future vessel conversions. Foss sought a waiver under the 2009 CHC rulemaking to keep operating the two hybrids with their original engines and to allow the company to convert other similar tugs to hybrid, keeping the Tier 0 and Tier 1 engines, but obtaining lower overall emissions in every category through the use of a hybrid electric system. Unfortunately, CARB did not grant a waiver, and Foss chose to redeploy the vessels to other markets and discontinue plans for future hybrid conversions and newbuilds since the regulatory environment did not support such innovation by providing flexibility for alternative means to achieve the same end. We urge CARB to design a regulatory system that supports and rewards early adoption of innovative, emission-reducing technology, rather than discouraging innovation through rigid and prescriptive regulation.”

Response 3118.16: CARB staff made no changes to the Regulation Order based on the received comment. Funding continues to be available for projects achieving emissions reductions additional to regulatory requirements. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al., Response 3158.11 et al., and Response 3165.1 regarding the ACE plan compliance pathway.

Comment 3119.6: “Grants and other funding sources are restrictive in their application and are a difficult “fit” to secure funding for construction of new pilot vessels. For example, “pilot vessels” were not included in the VW Mitigation Trust Grant program. SFBP would welcome access to financial support; however, the lack of inclusion in these type of programs supports our assertion that the State’s pilot vessels should not be subject to the proposed regulations.”

Response 3119.6: CARB staff made no changes to the Regulation Order based on the received comment. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al. regarding how compliance deadline extensions may provide additional flexibility when applying for grant funding. Comments discussing eligibility or requirements for specific grant programs are outside the scope of the rulemaking.

Comment 3125.3: “CARB notes that ZEV implementation costs can be funded by grants but fails to recognize how such a short compliance deadline rules out this possibility. As noted by Dr. John Headding, Chair of the Board of Directors of the Air Pollution Control District of San Luis Obispo County, in his comment letter”, most programs set a minimum project life of three years for upgrading to engines that reduce emissions. Therefore, the December 31, 2025 compliance deadline would effectively render Balboa Island Ferry and other short-run ferry services ineligible for grant funding, resulting in significant inequities for short-run ferries compared to other categories of commercial harbor craft. Thus, any requirement that a small, short-run ferry operation like Balboa Island Ferry transition to zero emission vessels must be accompanied by a much longer implementation timeline.”

Response 3125.3: CARB staff made no changes to the Regulation Order based on the received comment. See Response 3315 regarding provisions for short run ferries.

Comment 3134.1 & 3382.2: “1. Regarding subsection (f)(1)(I) on page 94, which states: “Emission reductions included in an ACE may not include reductions that are otherwise required by any local, State, or federal rule, regulation, or statute, or that are achieved or estimated from equipment not located in the region to which the ACE applies. The ACE application must not use equipment acquired by funds or grants that cannot be used to comply with State regulations, laws, or mandates.”

Requested change: The current language is confusing. The language is unnecessary if the intent is to allow operators to use grant funds, unless those funds are reserved for projects and programs that exceed State regulations, laws or mandates; or are otherwise restricted by the granting agency. Rather than limiting the use of grant funds to implement an operator’s ACE plan, WETA suggests that the restrictions on the use of grant funds come directly from the granting agency. WETA respectfully requests CARB to delete this language and instead rely on the granting agency to set eligibility requirements for the use of grant funds.

Alternatively, WETA requests that CARB revise the final sentence as follows: “The ACE application may use equipment acquired by funds or grants only if such grant funds may be used to comply with State regulations, laws, or mandates.””

Response 3134.1 et al.: CARB staff made minor changes to the Regulation Order based on the received comment while retaining the intent of the provision. CARB staff revised the final

sentence to “The ACE application must not use equipment acquired by funds or grants that prohibit use of funds to comply with State regulations, laws, or mandates.” in the board-directed 15-day package to provide clarification. The requirement of subsection (f)(1)(l) is intended not to undermine or reduce the impact of additional and surplus emission reductions achieved and paid through air quality incentive programs.

Comment 3158.10 & 3378.11: “The reference materials and Standardized Regulatory Impact Assessment (SRIA) all note that grant funding is available, but based on the criteria for grant eligibility, R.E. Staite may not be able to take advantage of the funding, leaving a large amount that must be self-financed. It should be noted that most grants also require that projects be funded up front by the Owner and then reimbursed when the project has concluded.

We appreciate the opportunity for funding to offset some of the costs we will incur. If there is a way to allow CARB Staff more discretion to approve requests for waivers/variances when there is a benefit to the public (improved emissions), it may allow for more projects to be completed in an accelerated fashion without actually changing the grant criteria or programs.

R.E. Staite Engineering, Inc. strongly supports the recommendations suggested by the San Luis Obispo County Air Pollution Control District Board (letter from SLO APCD dated October 5, 2021) in order to promote more meaningful grant opportunities:

“For the vessels with new regulatory replacement schedules where engine replacement is feasible, we have the following regulatory recommendations:

- 1. Add compliance flexibility to the CHC Regulation for coastal areas that are in federal attainment for ambient air quality standards, similar to the flexibilities provided in the CARB “In-use On-road and Off-road” Regulations.*
- 2. Any new replacement compliance dates should be set at least eight years from the effective date of the regulation, and not sooner than December 31, 2030, so air districts can provide meaningful grant funding for vessels with new regulatory schedules;*
- 3. The replacement schedules should factor in time needed for engine manufacturers to complete the development and deployment of additional Tier 4 engines and DPFs, and the certification of these new technologies by CARB, the U.S. Coast Guard, and if necessary, Cal OSHA; and*
- 4. The replacement schedules should allow flexibility for possible delays in Tier 4 and DPF deployment due to delays in production, certification, or industry limitations in repower specialists. ”*

In addition to the suggestions above, R.E. Staite would also encourage the ability to “grant stack” – being able to add several funding sources together in order to create a larger funding source for the more costly upgrades in our fleet. As the grant packages stand, it is difficult to piece together enough money to do one engine, let alone a whole fleet.

Based on the number of vessels that have to be repowered or purchased, reducing the matching fees a company would have to contribute would also get more vessels upgraded and in compliance in a faster timeframe. Some grant programs allow Government funding of 100%. Allowing 100% funding for the private industry as an incentive for targeted projects or targeted areas, such as Disadvantaged Communities (DACs) would put the focus on problem areas and assist with swifter implementation”

Response 3158.10 et al.: CARB made no changes to the Regulation Order based on the received comment. See Response 3158.1 et al., Response 3158.11 et al., and Response 3165.1 regarding the ACE plan compliance pathway and other flexibilities included in the 2022 Amendments. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for surplus emissions reductions prior to their compliance deadline, or surplus emission reductions for adopting cleaner technology than required. See Response 1094.3 et al. regarding funding in general. See Master Response 1 of the Response to Comments on the Draft EA regarding feasibility or availability concerns.

DPM is a known carcinogen that contributes to negative health impacts, including increased hospital admissions, particularly for heart disease and respiratory illnesses, and even premature death. There is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur. Exempting vessels operating in areas that are in attainment will decrease much-needed statewide emission reductions and introduce possible reporting inaccuracies if operators homeport vessels in areas of attainment but transit to other areas of the State and operate near communities experiencing a higher air pollution burden.

Comment 3165.8: “As a private company, CCE is not eligible for public funds and currently there are no grants or other sources of funding available through programs like the Carl Moyer or Cap and Trade Programs. As a result, the currently contemplated regulations would compel us to build an entirely new fleet of vessels at a cost of approximately \$120 million.

The cost to build a new vessel is approximately \$20 million. Under the proposed regulations, CCE would need to build 6-7 vessels by 2032, which at a minimum, would cost a total of \$120 million.”

Response 3165.8: CARB made no changes to the Regulation Order based on the received comment. Given the phased compliance timeline and extensions available, vessel owners may still be eligible to apply for funding for surplus emissions reductions achieved either prior to their compliance deadline, or by adopting cleaner technology than required. See Response 3158.1 et al. regarding pathways to compliance. See Response 1094.3 et al. regarding funding in general.

Comment 3195.19: “C. The Opportunities for Vessel Owners to Access Funding Assistance to Meet the Economic Consequences of a Regulatory Scheme Whose Benefit is Disproportionately Imposed on a Relatively Tiny Number of Businesses Are Not Realistically Viable

There are residual concerns with the funding opportunities that CARB identifies as potential avenues for financial assistance and relief of the cost impact of the contemplated regulations.

For many fishing vessels, funds are completely unavailable or extremely limited. There are inconsistent management practices among local Air Pollution Control Districts (APCD) under the CMP. Although there are established CMP guidelines, the local APCDs have the discretion to reduce project lives making it more difficult for some projects to compete, lower the cost effectiveness cap, prioritize industries and recipients, limit the number of engines one owner can apply for, prioritize projects located in impacted/ environmental justice zones, maximize or limit contract terms, among others. Here are some examples of how this discretion currently affects the CPFV owners:

Within the SCAQMD, all CMP projects are prioritized for emission reductions that occur in Senate Bill (SB) 535 and SB 1550 disadvantaged and low-income communities. For the past three years, including the funding cycle that recently concluded in August 2020 (CMP fiscal funding cycles 20-22), the SCAQMD has prioritized projects located in these areas. This has resulted in automatic denial of both commercial fishing and CPFV applications located outside of these identified zones, to include, Santa Monica, Redondo Beach, and Marina Del Rey. We have seen similar funding denials in San Diego. The very notion that these projects do not qualify because their emissions do not directly affect the local population, as determined by the local APCD, is inconsistent with the CARB CHC assumptions, which erroneously point to the commercial passenger fishing industry as heavy polluters.

For example, within the San Diego Harbor, most of the inspected CPFV's are located adjoining Point Loma harbor entrance, which is outside of the identified disadvantaged community area near the Port of San Diego. According to the CALEnviroScreen (attached), which identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution, there are very few fishing vessels that are within these impacted areas. In fiscal funding cycle, Year 20, the SCAQMD Board made a motion to only fund specific industries and eliminated all marine projects from eligibility screening.

Funding opportunities vary from agency to agency, and funding distribution is based on population size and pollution severity. The SCAQMD region and Bay Area Air Quality Management District (BAAQMD) receive millions of dollars each year to reduce pollution in their large geographical regions. In contrast, the San Diego Air Pollution Control District (SDAPCD) receives \$750,000 per year, the North Coast AQMD (NCUAQMD) receives approximately \$250,000 per year, and the Santa Barbara County APCD (SBCAPCD) had a maximum of \$1.6 million this year (a non exhaustive list).

All of the agencies, who receive CMP funds, prioritize projects based on proximity to disadvantaged communities. Many of these smaller agencies are not able to cover the full 80% that the CMP allows for or may even cap the project award funds at a specific amount. For example, the NCUAQMD has (at times) capped projects at 65%, while the SBCAPCD will limit funds to a maximum of \$150,000. For most inspected vessels carrying more than seven passengers, \$150,000 will only cover the purchase of one engine and possibly none of its associated installation cost. The other propulsion engine must be covered by the owner. Funding for CPFV's is inequitable throughout the state, with several limitations.

Some Districts rank projects, and funding is competitive, and some Districts offer first come first serve funding opportunities. This limits funding opportunities where marine vessels are

competing against industries that are the first to have more modern engines and equipment available due to U.S. Environmental Protection Agency (EPA) emission standards and approval processes.

The locations of operations allowed for vessel owners vary from one agency to another. For the BAAQMD and SCAQMD, 75% of a vessel's operations must occur inside their identified waters. By contrast, the SBAPCD requires 100% operation within a multi coastal county region – Santa Barbara, San Luis Obispo, and/or Ventura counties. This eliminates funding opportunities to those who operate outside these parameters.

As previewed above, some agencies will fund projects at the maximum eligible project life at 16 years, while other agencies will cap the project lives at 3, 7 or 10 years. When projects are calculated at shorter project lives, it is difficult for marine projects to compete, as off-road and on road engines that achieve greater emissions reductions are approved more quickly than marine engines. In addition, marine projects are extremely costly in comparison to other categories, which is another limitation to the CPFV competitiveness when evaluated on the cost vs benefit of associated emissions reductions.

The current proposed replacement schedule in the CHC rule does not allow for three years of surplus emission reductions, in order to qualify for CMP. Most vessel owners can only complete repower work in winter (off-season). This requires careful planning and puts pressure on engine lead times and facility availability. In addition, currently CMP funds do not cover vessel replacement, which will be the majority of the costs for CPFVs under the CHC. Finally, with this rule, there will be thousands of vessels seeking CMP and other grant funding resulting in even greater competition for limited funds.”

Response 3195.19: CARB staff is not proposing changes to the Carl Moyer Program or other incentive program guidelines, therefore comments related to specific incentive program guidelines or eligibility requirements are outside the scope of this rulemaking.

However, CARB staff will continue to coordinate with local air districts and communicate funding opportunities to stakeholders. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for surplus emissions reductions achieved either prior to their compliance deadline, or by adopting cleaner technology than required. See Response 1094.3 et al. regarding funding. See Response 1.7 et al. regarding the 15-day changes and how CPFV owners can utilize extensions to gain eligibility for the Carl Moyer or other incentive programs. See Response 3158.1 et al. regarding pathways to compliance.

Comment 3195.63: “The CPFV fleet has already accomplished significant emission reductions through the use of the CMP where it is available. The recommendations in this letter to remove the barriers to the use of the CMP and to provide full access to the maximum grants for the entire fleet would result in additional emission reductions.”

Response 3195.63: CARB staff is not proposing changes to the Carl Moyer Program or other incentive program guidelines, therefore comments related to specific incentive program guidelines or eligibility requirements are outside the scope of this rulemaking.

However, CARB staff will continue to coordinate with local air districts and communicate funding opportunities to stakeholders. See Response 1.7 et al. regarding the 15-day changes and how CPFV owners can utilize extensions to gain eligibility for the Carl Moyer or other incentive programs.

Comment 3218.3: “There are too many vessels operating within California regulated waters than can possibly be funded through existing grant programs. Thus, the Port encourages CARB to create dedicated CHC grant programs and provide additional funding allocations for CHC. We also request that CARB delay compliance schedules to allow operators to take advantage of funding opportunities, as grant dollars cannot pay for compliance. Some compliance deadlines begin in the next few years, and there is very limited time for operators to secure funding and deploy compliant CHC.”

Response 3218.3: CARB staff made no changes to the Regulation Order based on the received comment. Comments asking CARB to create dedicated funding programs are outside the scope of this rulemaking. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al. regarding compliance pathways and extensions. As described in Chapter II of the Staff Report, emission reductions are needed to reduce the uncompensated health and environmental costs to communities in California near where harbor craft operate, as well as people living and working miles away. Chapter II further explains that substantial near-term emission reductions are needed to meet the 2023 and 2031 National Ambient Air Quality Standards for ozone in the South Coast Air Basin. These needs are inconsistent with delaying compliance schedules.

Comment 3351: “Staff were very specific in crafting the commercial fishing rule to only require Tier 2, not because staff support Tier 2 as they clearly don't. And it is not possible to purchase a new Tier 2 engine. What it does is preserves commercial fishing's access to the Carl Moyer Program. We want the same access. If engine and DPF salespeople get an approved solution that can be retrofitted and is safe, it would become the best available technology under Carl Moyer.

Many sportfishing vessels have used Carl Moyer to upgrade twice and they don't plan to stop, because they are committed to clean air as well. What's sportfishing vessel owners have offered is using the best available technology to retrofit existing boats and working with our elected State and federal champions to help transition to reach our 2045 goals.”

Response 3351: See Response 3338 regarding the distinctions made between CPFVs and CFVs. See Response 1.7 et al. regarding the 15-day changes and its effects on CPFV owners' access to funding. See Master Response 1 in the Response to Comments on the Draft EA regarding safety.

Comment 3371: “The vast majority of the commercial fishermen on the California coast north of Morro Bay are small boats operated by the owner and 1 to 2 other crewmen. Trolling, long-lining and trap fishing are their predominant methods of fishing. None of these methods are fished while running the vessel at full throttle. They are operated at much reduced RPMs. The fishing is offshore, and not near populated areas. It does not affect the number of people that boats operating within the harbors and bays do. The proposed regulations will devastate hundreds of commercial fishermen and their families on the

California coast, unless government grants are made available to all affected fishermen. Currently marine re-powering grants are not available in some areas (Mendocino County for example)-- the programs differ from local air quality district to district. Many fishermen are excluded from the existing grants that are competitive due to lack of sufficient funds. These regulations, I believe, are a form of eminent domain. The 5th amendment requires that a person be compensated for such an act of eminent domain. This could be accomplished by making grants for re-powering available to all commercial fishermen who will be affected."

Response 3371: CARB staff made no changes to the Regulation Order based on the received comment. The comments specific to fishing methods do not refer to any specific rulemaking document or analysis, therefore CARB staff cannot provide a response. Comments asking CARB to create grants are outside the scope of the rulemaking. See Response 3121.10 et al. regarding the "Takings Clause" of the Fifth Amendment, which addresses the commenter's suggestion that the regulation is a form of eminent domain.

Comment 3373.5: "4)The current lack of incentive structure will be further impacted by these regulations. The CHC regulations proposed would render obsolete the investments towing companies have made through existing grant programs in the state of California. If CHC operators want to take advantage of carl moyer, vw, dera, funding sources we may be faced with a situation where in a couple years CARB introduces another set of standards that make that vessel upgrades obsolete. This is a clear case of trying to push progress through regulation vs incentivization. This regulation undercuts the purpose of these grant programs which is to incentivize companies to invest in best available technologies at the time because there is a possibility that a subsequent CARB regulation will render that tech obsolete. When we do new construction we use the best available technology. CHC operators are not trying to circumvent cleaner emission technology but trying to point out that the technology has to be feasible first."

Response 3373.5: CARB staff made no changes to the Regulation Order based on the received comment. Comments speculating potential future requirements are outside the scope of the rulemaking. See Response 1094.3 et al. regarding funding. See Response 3158.1 et al. regarding how compliance deadline extensions may provide additional flexibility when applying for grant funding. See Appendix E of the Staff Report, which contains CARB staff's assessment of feasibility of the performance standards.

Comment 3383: "I recently as today we have reached out to the major suppliers of Marine Engines for Tugs and Workboats in California about designing and providing marine engines with DPF based on the CARB Schedule. Every OEM provided the same comment, they have heard about the rule but have no begun RD or any research to make these DEF Systems nor do they have a timeline when they are available

Which OEM of Marine Engines (CAT, MTU, Cummins, EMD) has CARB Staff reached out to that provided feedback that these DPF's will be designed and available on the new Harbor Craft Rule and will they work on present Tier 3 and Tier 4 engines we have already purchased and installed in our vessels?"

Response 3383: CARB made no changes to the Regulation Order based on the received comment. See Response 2602.2, which discusses manufacturers' plans to manufacture technology needed for vessels to comply with the 2022 Amendments.

Comment 3399: "Christine Batikian representing the Port of Los Angeles. The Port of Los Angeles submitted written comments on the draft rule in a joint letter with the Port of Long Beach in November 2021. Our comments provided in that letter remain relevant and important, but we'll focus our verbal comments today on funding availability for harbor craft.

We have concerns with the funding programs CARB staff presented during the January meeting. Carl Moyer funding has been pointed as a main source of funding. However, Carl Moyer funding prioritization is currently set aside by the air districts. Historically, air districts have provided limited, or in the case of some air districts, no funding to harbor craft through Carl Moyer.

Additionally, harbor craft that must meet regulations prior to 2025 will be ineligible for Carl Moyer funding as they will not meet the useful life requirements. Harbor craft that do not meet the useful life requirement may also not meet current cost effectiveness. Many vessels that currently have Tier 2 or 3 engines will not be able to accommodate a Tier 4 engine in their existing vessel and will need to be replaced. Unfortunately, replacing a Tier 2 or 3 engine with Tier 4 will not meet current Carl Moyer cost effectiveness.

We request that CARB staff set aside funding for the air districts specifically for harbor craft in Carl Moyer, adjust cost effectiveness regulation -- cost effectiveness calculations to allow for harbor craft replacements, and increase the funding amount overall. Additionally, CORE -- another program presented was CORE. CORE requires that the equipment must be verified and listed and eligible for participants to get funding. There is currently no listed harbor craft equipment or shore power infrastructure on the list of eligible equipment. Therefore, no CORE funding can be used at this time.

EPA's DERA funding was named as a funding source. DERA is a competitive grant against projects throughout the Entire EPA Region 9, which is four states. The funding availability is relatively small for DERA projects. We thank you for all the hard work, but the funding is not there to meet the timeline that CARB has set. CARB must set aside funding specifically for harbor craft or adjust existing funding programs in order for them to be of any use to harbor craft owners and operators."

Response 3399: CARB made no changes to the Regulation Order based on the received comment. CARB will continue to coordinate with local air districts and communicate opportunities to stakeholders. The Clean Off-Road Equipment Voucher Incentive Project (CORE) released an updated implementation manual on May 10, 2022 that now includes CHC equipment. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for surplus emissions reductions prior to their compliance deadline or for implementing cleaner than required technology. See Response 3158.1 et al. regarding pathways to compliance. See Response 1094.3 et al. regarding funding in general.

Comment 3406.1: "First, we requested CARB to clarify language which discussed language regarding funding restrictions for an operator's ACE plan. And we requested that CARB make changes to limit the use of grant funds -- I'm sorry, to -- rather than limiting the use of grant funds to implement an operator's ACE Plan, we suggest that the restrictions on the use of grant funds come directly from the granting agency."

Response 3406.1: See Response 3134.1 et al. regarding 15-day changes made to the language this commenter refers to.

Comment 3413: "Thank you, Chair Randolph and members of the Board for the opportunity to make comments on the proposed amendments to the commercial harbor craft regulation. My name is Leela Rao and I'm with the Port of Long Beach.

The Port supports the intent of this regulation, substantial emission reductions from harbor craft, and appreciates the efforts by CARB staff to engage stakeholders throughout this rulemaking process. Together with the Port of Los Angeles, the Port of Long Beach has met with staff numerous times and submitted several comment letters.

However, the issues from our most recent comment letter remain unaddressed and staff propose 15-day changes. Those comments still apply, but I'll focus my comments today on the most significant issue for compliance with the proposed amendments, the lack of sufficient incentive funding for replacement of harbor craft used at ports.

Although CARB staff continues to highlight several funding programs as being available for harbor craft projects, the reality is that these programs aren't accessible to harbor craft operators. A prime example is the Carl Moyer Program. While significant dollars are allocated to Carl Moyer each year, the districts don't often prioritize harbor craft. In addition, meeting the cost effectiveness -- effectiveness requirements will be very difficult for vessels requiring new builds, which includes many tugboats due to their individualized and compact designs.

Vessels required to be replaced or upgraded by 2025 will also be completely ineligible for Moyer funding due to the cost-effectiveness requirements. DW funding is similarly difficult to access, because it only incentivizes retrofits instead of new builds and the incentives are far too low. The ports are committed to reducing emissions from harbor craft as evidenced by our harbor craft technology advancement projects underway.

However, harbor craft continues to be one of the most challenging sources of emission, in large part, because many vessels need to be replaced, not retrofitted, to provide enough space on board for emission control technology, and the cost for the cleanest vessel technologies is upward of \$20 million per vessel.

We respectfully ask the Board to direct staff to ensure sufficient dedicated harbor craft funding sources to aid in compliance with these proposed amendments."

Response 3413: CARB made no changes to the Regulation Order based on the received comment. CARB will continue to coordinate with local air districts and communicate opportunities to stakeholders. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for early or extra emissions reductions prior to their compliance deadline, or for adopting cleaner technology

than required. See Response 3158.1 et al. regarding pathways to compliance. See Response 1094.3 et al. regarding funding in general.

Comment 3420.1: "First, we are concerned that the commercial harbor craft compliance dates paired with the Carl Moyer Program funding surplus regs requirements will not allow vessel operators to get even half the lifetime out of their engines, if they want to take advantage of these funds. All 2009 engines and prior will already be disqualified from Carl Moyer Program due to its surplus requirements. The 2012 engines will not even be allowed to get the half of their useful life, if they are to be eligible for Carl Moyer Program funds.

We are also concerned that South Coast AQMD is not allocating Moyer funds for marine projects this year. This is one of the most impacted air districts per CARB's own assertion. This decision not to fund marine projects this year is congruent with the implementation of the Commercial Harbor Craft regs. We are concerned that this is an unfunded mandate. The lack of concrete language in the Moyer Program makes it difficult for commercial harbor craft operators historically to apply for funding to go zero emissions or to upgrade to cleaner diesel technology as required by these regulations."

Response 3420.1: CARB made no changes to the Regulation Order based on the received comment. Comments specific to Carl Moyer Program or other incentive program guidelines, or how the programs are implemented by air districts, are outside the scope of this rulemaking. However, CARB will continue to coordinate with local air districts and communicate opportunities to stakeholders. Given the phased compliance timeline and extensions available, regulated vessels may still be eligible to apply for funding for early or extra emissions reductions prior to their compliance deadline. See Response 3158.1 et al. regarding pathways to compliance. See Response 1094.3 et al. regarding funding in general.

j. Sportfishing

(1.9) (2.7) (8) (19) (32.1) (33.1) (41) (47) (54.1) (60) (83.3) (221) (294) (358) (451) (638) (696.6) (738.1) (748.1) (762.2) (770) (887) (897) (921) (932) (1033.3) (1049) (1079) (1114.6) (1117.1) (1146.1) (1153.5) (1174) (1181) (1199) (1200) (1222) (1237) (1259) (1306) (1330) (1361.3) (1363) (1365) (1376) (1428.2) (1449) (1469.2) (1476) (1486) (1499.2) (1554.1) (1589) (1603.4) (1615.1) (1632) (1643.5) (1658.3) (1675.5) (1677) (1683) (1688.2) (1692.2) (1698.3) (1699.7) (1715) (1741.1) (1746) (1824) (1825) (1856) (1897) (2108) (2119) (2131) (2211) (2212) (2275) (2358.5) (2370.4) (2375) (2498.2) (2521.2) (2525.9) (2560.4) (2574.6) (2574.8) (2583.2) (2584) (2585) (2607.5) (2608) (2619.4) (2628.4) (2666) (2668) (2673) (2748) (2877.3) (3023.3) (3026.1) (3038.1) (3195.13) (3264.4) (3284) (3299.3) (3300) (3303) (3306) (3308) (3321.3) (3326) (3352.3) (3355) (3359)

Summary of Comment 1.9 et al.: Many commenters affiliated with the sportfishing industry indicated that the sportfishing and commercial fishing categories were regulated the same and requested that they continue to have the same requirements as commercial fishing vessels. Commenters indicated that CPFVs and commercial fishing vessels use the same class of boats, the same engines, earn similar profit margins, and use the same fishing license. Commenters suggested that requiring different requirements for sportfishing vessels applies a double standard and allows commercial fishing vessels to be subject to substantially less

stringent and less costly requirements. Commenters believe sportfishing should be in the same category as commercial fishing or should be exempt from the rule altogether. Many comments did not specifically request a change to the vessel categories, but simply stated they wished this rule to not go forward at all, due to the strain it may have on sportfishing vessels. These comments were grouped here for simplicity.

Response 1.9 et al.: As described in Chapter II of the Staff Report, emission reductions are needed to reduce the uncompensated health and environmental costs to communities in California near where harbor craft operate, as well as people living and working miles away. Additionally, substantial near-term emission reductions are needed to meet the 2023 and 2031 National Ambient Air Quality Standards for ozone in the South Coast Air Basin. These needs are inconsistent with exempting some or all CHC from requirements to reduce emissions.

See Response 3338 regarding CPFV vs. CFV requirements, and Response 1.7 et al. discussing the 15-day change providing a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024.

Comment 133: "I am opposed to CHC2021 and request a modification so that sportfishing boats are exempt..."

Response 133: See Response 1.7 et al. regarding the Board-requested 15-day change made providing a one-time, ten-year extension for CPFVs that are Tier 3 by the end of 2024. See also the 15-day change to the Regulation Order to clarify that alternatively fueled uninspected passenger vessels carrying six or less passengers or "six-pack" vessels not required to be registered with USCG pursuant to 46 CFR 67.7 and 46 CFR 67.9 are exempt (see Subsection (c) Exemptions (5)). See also Response 1.9 et al.

Comment 696.9: "1. Why has the CPFV fleet been separated and singled out by this proposed regulation rather than being considered in the same class as CFV's - as we have been up until now ??"

Response 696.9: See Response 3338 regarding CPFV vs. CFV requirements, and Response 1.7 et al. discussing the 15-day change providing a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024. See Response 133 regarding alternative-fueled "six-pack" CPFV.

Comment 929: "The impact that commercial fishing does to our ocean and environment is far greater than leisure fishing. Catching 1 fish and fighting it for 30 minutes is different than catching 100k lbs of fish and in the same time and destroying the ocean floor and polluting the air."

Response 929: No changes were made to the Regulation Order in response to this comment. See response to Comment 696.9.

Comment 1497.4: "I, William Wilkerson Of B M Sportfishing, align with the SAC and GGFA recommendations to modify the following elements of the proposed CHC Regulation.

1. That CPFV continues to be considered a "Fishing Vessel" and receive the same compliance deadlines as the Commercial Fishing Vessels, with Tier 2 serving as final

compliance. Tier 0 and Tier 1 engines will follow the proposed replacement and low usage exemption requirements.

2. That Opacity testing requirements be eliminated for CPFV's. These requirements are cumbersome, and a majority of our operators will not have the capacity, resources, or wherewithal to complete this task.
3. That Fee Schedules be removed from CPFV obligation.
4. Those CARB initiatives a thorough outreach campaign for all California Fishing Vessels. SAC and GGFA have several recommendations on how this can be completed more effectively."

Response 1497.4: See response to Comments 133 and 3338 outlining Board-requested 15-day changes to the Regulation Order for CPFVs.

Opacity testing is not addressed in the 15-day changes and is intended to ensure that all emissions controls on regulated engines operating on harbor craft are functioning properly. This biennial opacity testing requirement will apply to all CHCs and can be done by a third-party certified opacity testing company. CARB is establishing a contract with the California Council on Diesel Education and Technology (CCDET) to develop a harbor-craft opacity testing certification course that will be offered at multiple locations throughout the State over the next two years.

The fee schedules outlined in the Regulation Order are not addressed in the 15-day changes. Fees are necessary to pay for implementation and enforcement of the 2022 Amendments beginning January 1, 2023.

CARB staff supports working with both SAC and GGFA to improve stakeholder outreach during implementation of the Amended Regulation Order.

Comment 2332: "the smaller boats (under 125') should be left alone. Those are small operators who take a well regulated group of enthusiastic anglers out for trips of a lifetime. Please consider the scope your proposed rules to perhaps exempt the local commercial fishing operators."

Response 2332: No changes were made to the Regulation Order in response to this comment. See Response 133 regarding alternative-fueled "six-pack" vessels and Response 1.9 et al. regarding the need to reduce emissions from CHC including CPFV.

Comment 2567.6: "Further, our Harbor Commission views many of the proposed amendments are being inequitable in their regulation of different vessel categories. For example, sportfishing, research, educational, construction and other workboats have stricter emission standards with compliance dates beginning as early as 2023 while commercial fishing has less stringent emission standards with compliance dates starting in 2030. As another example, the Sportfishing Association of California estimates these amendments could impact 174+ sportfishing vessels statewide, which are principally small business operators. Although these vessels spend minimal time in harbors with their engines running and typically spend much of their time operating miles offshore with negligible adverse impact to local air quality, sportfishing vessels will be subject to the most stringent emission

standards. In our view, there is no justification for such unfair treatment as all affected vessels should have the same engine standards and maximum allowable time.”

Response 2567.6: CARB staff disagrees that emissions from CPFV activity have negligible adverse health effects especially for CPFV passengers including children. However, see the Response 133 and Response 3338 detailing Board-requested 15-day changes to the Regulation Order for changes to the compliance requirements and timeline for CPFVs.

Comment 2588.8: “Staff also assert that the reason that commercial fishing vessels will only be required to have Tier 2 engines without a DPF is because they are unable to pass on the extra cost, and they have a small profit margin. There is no data to back this up, and I believe this assertion shows a lack of understanding of the economics of both of these industries. I contend that neither industry can afford to comply with these regulations. I have owned a CPFV for 17 years and a commercial fishing boat for 13 years. While my gross revenue has been much higher on the CPFV, the profit margin while commercial fishing is higher. As previously mentioned, CPFVs are expensive to maintain and operate. Not only do they have numerous fixed costs built into the pricing structure (bait, landing, port), but insurance, maintenance and crew costs tend to be dramatically higher. Over the last 17 years, I typically have an approximate 10% profit margin on my CPFV, and a 60+% profit margin while commercially lobster fishing. I have had years with a \$1,000,000 gross on the CPFV and a \$100,000 gross on the commercial boat and my take home was the same (\$60-70,000) from each business.

Staff also fail to account for how many associated businesses will be affected or forced out of business. I am a 25% owner of a fish processing business where 100% of our revenue is derived from processing sport caught fish. The vast majority of our business comes from CPFVs with less than 5 percent from recreational boats. This business supports 8 full time employees and an additional 42 seasonal employees. Without the CPFV fleet we will not survive. Many of our employees live in one of the Disadvantaged Communities that we are trying to protect. There are numerous businesses on the waterfront that depend on the CPFV fleet to attract customers from the entire country. Some examples are: fuel docks, sport fishing landings, boat yards, tackle shops, hotels and restaurants.

Staff proposes to separate CPFVs from commercial fishing boats, but there is no clear direction as to how this will be done. Many CPFVs participate in various commercial fisheries throughout the state when it is economically advantageous to do so. In Southern California they participate in the squid, bluefin tuna and rockfish fisheries, while in Northern California many CPFVs participate in the Dungeness crab, salmon, rockfish or albacore fisheries. For many of us, the CPFV license is just one of many commercial fishing licenses that we hold. Under the proposed rules, it is unclear if a vessel that does both commercial fishing and CPFV fishing will be allowed to participate in both fisheries without complying with the new rules.”

Response 2588.8: See Response 3338 regarding CPFV vs. CFV.

See Responses 2.6 et al., 1430, and 810.1 regarding CARB staff’s analysis of how the 2022 Amendments would impact jobs in California.

CARB staff discussed CPFV and CFV's competitive advantage or disadvantage for in-state versus out-of-state vessels in RCW from the 2022 Amendments in SRIA. See Section h. Competitive Advantage and Disadvantage in Chapter E of SRIA and Response 2833.1.

See Response 1.7 et al. regarding the 15-day change providing a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024.

Comment 2594.8: "Why are we being singled out for new regulations? Traditionally commercial passenger fishing vessels are in the same class as commercial fishing vessels. I feel like we are an easy target for CARB because there is so little of us, (174) vessels. We need to be held to the same standards as all of the other commercial fishing vessels. Commercial fishing vessels will only have to upgrade to tier 2 engines? Or keep mechanical? Black smoke from commercial fishing vessels, tug boats, tractor tugs, commercial ship traffic, why are we being singled out? We are small business owners. We pay our taxes and we provide a service to the community. This new standard is not right."

Response 2594.8: See Response 133 and 3338 regarding CPFV vs CFV. See Response 1.7 et al. regarding the 15-day change providing a one-time, ten-year extension option for CPFV that have Tier 3 engines by the end of 2024.

Under the 2022 Amendments, all vessels subject to the regulation will be required to perform biennial opacity testing and repair their engines if they do not meet the opacity limits.

Regarding commercial ships, CARB staff assumes the commenter is referring to ocean-going vessels as defined in 93118.5 (d), which are subject to CARB's Control Measure for Ocean Going Vessels At Berth. See Chapter I of the Staff Report for a discussion on CARB's activities to reduce emissions from ocean-going vessels.

Comment 3195.14: "Of the 577 licensed CPFV's in the State of California, there are approximately 174 U.S. Coast Guard (USCG) inspected CPFV's (seven or more passengers) and 403 uninspected CPFV's (six or less passengers; six-pack). The majority of the inspected vessels and several of the uninspected are members of either SAC or GGFA. Of the 403 six-packs, 178 have diesel engines, while 225 are gasoline powered six-packs that are exempt from the rule.

CARB plans to regulate 352 vessels with this rule, including the 174 inspected CPFV and approximately 178 diesel-powered six-pack boats. However, since there is a low use exemption and only about 40 six-packs operate full-time and over half of those are believed to have gasoline powered engines, the rule is effectively targeted at the 174 full-time CPFVs. Full-time is defined as 50 or more days at sea as reported to California Department of Fish and Wildlife (CDFW). This means that the proposed rule would impose its most stringent and economically devastating requirements on the narrow segment of inspected CPFVs.

From a fisheries standpoint, both uninspected and inspected vessels are licensed by the CDFW as CPFV. From a tax perspective, the State of California implements the same sales and tax exemption structure for BOTH commercial fishing vessels and CPFV's. Both Commercial Fishing Vessels and CPFV's receive the same foundational commercial fishing permit, and many CPFVs will conduct commercial fishing activities from time to time. All

water-related issues are both inherited and solved in cohesion among our industry, with Commercial Fishing Vessel owners working side by side with CPFV owners since the boats and the issues affecting them are similar.

From all perspectives, our operations are in many key respects indistinguishable from the commercial fishing operations. The fundamental difference being our industry caters to recreational passengers, including many from out of state, who contribute to state and local economies. In addition, CPFVs allow ocean access for fishing for individuals that do not have the means to own or access to their own boats. Put differently, our operational load consists of passengers (which varies greatly depending on the boat, time of the week and year, and fluctuations in weather and fishing conditions), and commercial fishing vessels operational load consists principally of their "catch". As noted above, many owners actually engage in BOTH commercial fishing and commercial passenger fishing from their vessels at various times of the year, making these operations even more indistinguishable. Lastly, we note that the original CHC Regulation did not differentiate within the commercial fishing industry, as both commercial fishing vessels and commercial passenger fishing vessels were classified as

"Fishing Vessel" (definition below) and regulated the same. "Fishing Vessel" means a self-propelled vessel that is either: (A) a commercial vessel dedicated to the search for, and collection of, fish for the purpose of sale at market or directly to a purchaser(s), or (B) a charter vessel used for hire by the general public and dedicated to the search for and collection of, fish for the purpose of general consumption.

This was then and remains now, exactly correct. The artificial differentiation between (A) and (B) currently being proposed by CARB for the revised CHC regulation is new but should not have been changed for the purpose of this rulemaking."

Response 3195.14: See Response 133 and Response 3338 and Response 1.7 et al. regarding the 15-day change to the Regulation Order providing a one-time, ten-year extension option for CPFVs that have Tier 3 engines installed by the end of 2024, and Response 1.3 et al. regarding the impacts of the 2022 Amendments to individuals as it relates to sportfishing.

The Amendments now expressly separate the definitions and applicable requirements for commercial passenger fishing vessels and commercial fishing vessels. Vessels that are accepting payment in exchange for carrying passengers on fishing trips will be classified and regulated by CARB as CPFVs. See the definition for "Commercial Passenger Fishing," below,

"Commercial Passenger Fishing" (also called "Charter Fishing" or "Sportfishing") means any coastal or offshore vessel used for sport fishing, charter fishing, or any other type of fishing activity where individuals other than the owners or operators of the vessel are on board the vessel to perform fishing activities in exchange for payment to the vessel owner/operator. Commercial passenger fishing vessels include vessels operated on both day and overnight trips, including trips that may traverse in and out of RCW.

Beginning January 1, 2023, "Fishing Vessel" is defined as a "commercial vessel *dedicated to* the search for, and collection of fish for the purpose of sale at a market or directly to a purchaser(s)." Accordingly, only those vessels that meet the new definition of "fishing vessel"

are subject to the emissions requirements for commercial fishing vessels. See page IV-23 of the ISOR for this rulemaking.

CARB staff created subcategories in the original CHC Regulation to delineate passenger carrying "charter fishing" vessels from commercial fishing vessels with only crew for emissions inventory purposes. This separated the passenger-carrying commercial passenger fishing vessels with paying passengers, including children, who are all subjected to near source exposure to diesel engine emissions during fishing trips from commercial fishing vessels carrying captain and paid crew under employment. CARB staff revised/renamed the "charter fishing" vessel subcategory in the current CHC Regulation to commercial passenger fishing vessels (CPFVs) based on input and advice from SAC. As vessels carrying paying passengers from the general public, CARB staff believes CPFVs should be required to comply with the same stringent performance standards as other passenger carrying vessels like excursion vessels and ferries in order to protect the health of passengers and the general public residing in impacted coastal communities. CARB staff points out that the significant design differences between the two types of fishing vessels, with CPFVs designed primarily to carry passengers with fishing poles and many of the CFVs having specialized vessel designs with holding tanks, booms, winches, and other ancillary equipment for trawling with nets or long lines to catch specific species of fish, hauling in large quantities of catch or crab pots, and then sorting and storing it for transport back to land will have a significant impact on Tier 4 engine or exhaust aftertreatment feasibility when compared to commercial passenger fishing vessels transporting passengers with fishing poles.

In the Amended Regulation Order, CARB has created subcategories in additional CHC sectors like towing vessels and ferries for emissions inventory purposes, to reflect vessel design differences, feasibility, emissions profiles, and to determine timelines and applicability of compliance requirements.

Also see Response 3338 regarding CPFV vs CFV.

Comment 3195.21: "CARB used Cal Maritime safety and financial impact rationale to justify their decision to only require commercial fishing boats to meet Tier 2 engine standards, including extended time periods for compliance. It is inexplicable that while CPFVs exhibit the exact same characteristics, CARB seeks to impose a completely different (and substantially more onerous) set of standards for our vessels. Per CARB's analysis, the limited requirements for Commercial Fishing Vessels are based on the following:

- Unique offshore operations. This is probably truer for CPFVs, where more operations are far offshore. Commercial fishing has many operations that are near-shore.
- Industry economic considerations compared to other vessel categories. CPFVs face the same economic issues as the commercial fishing vessels do, and profit margins per boat may even be lower.
- Due to larger population (38 percent of fleet), emissions reductions are still needed. SAC/GGFA would commit to similar controls as proposed for commercial fishing vessels, and inspected CPFVs represent a much smaller percentage of the CHC fleet standing at 174 vessels compared to 1,199 for commercial fishing.

- Draft proposal would require Tier 2 or newer engine, phasing in between 2030 and 2032. SAC/GGFA would commit to these same requirements and believe that those with access to CMP grants are already compliant.
- Later compliance schedule than other regulated in-use vessels to allow operators to maximize funding opportunities. CPFVs would like the same time ability to maximize grant and other funding”

Response 3195.21: See Response 3195.14.

Comment 3195.25: “While the goal to reduce emissions in the State of California is laudable, it is being accomplished efficiently and with substantial success as proscribed in the rules for Commercial Fishing Vessels such that differentiation of the CPFVs, particularly in light of the drastic economic consequences, physical configuration and safety barriers, is untenable and not supportable.

SAC conducted a survey, which indicated most of the inspected vessels that presently operate on the coast have repowered to Tier 2 or 3 engines through grant-funded projects. Based on the owners' comments, it is unlikely that they will be able afford to replace their vessels and repower again to Tier 4 and/or DPF without access to funding. It is recommended that CPFVs continue to be classified with Commercial Fishing Vessels so they can then afford to upgrade to Tier 3 engines as funding programs are available.”

Response 3195.25: See Response 3195.14 for detail on Regulation Order applicability to CPFVs and CFVs.

See the Notice of Public Availability of Modified Text and Availability of Additional Documents and Information Proposed Amendments to the Commercial Harbor Craft Regulation for the 15-day changes to the Regulation Order, part nn on page 11 of 18, allowing operators to utilize the findings in the 2019 CSU Maritime Tier 4 Feasibility study to apply for 10 year extensions.

Comment 3195.35: “By excluding a large number of vessels from the requirement for Tier 4 engines and DPFs, CARB is placing the burden of stringent emission reductions on the remaining vessels in the CHC fleet, including CPFV vessels for which the standards remain technologically unavailable, operationally infeasible and economically and financially unviable. CARB’s justifications for exclusion of commercial fishing boats also apply to the inspected CPFVs, and both vessel types are very similar in many aspects except that CPFVs carry passengers. As such, both vessel categories should have been treated similarly under the rule under the compliance path afforded Commercial Fishing Vessels to allow continued access to grant funding for CPFVs as well and an appropriate timeline.”

Response 3195.35: See Response 3195.14.

See Appendix E of the ISOR, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, Chapter IV beginning on page E-39 for more information on CSU Maritime’s 2019 Tier 4 Feasibility Study.

Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617 and the DOF. Please refer to SRIA for the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, gross State product, and output.

CARB staff also proposed a 15-Day change to provide a one-time, ten-year compliance extension pathway for CPFV owners. See Response 1.7 et al.

Comment 3195.55: "It is Illogical and Arbitrary to Separate CFVs from and Give them Far Less Onerous Treatment over the Smaller Similarly Situated CPFV Fleet

There are 1,199 commercial fishing boats and only 174 commercially inspected sportfishing/whale watching boats; why are boats that have identical engines held to different emission standards?

Cal Maritime Academy raised nearly identical issues regarding technological availability and safety for CFV and CPFV, why was this CARB commissioned report ignored as it applies to CPFVs in preparation of the rule?

Many CPFV also conduct commercial fishing operations, what is the application of the rule to vessels that conduct both types of operations?

What analysis was conducted on CFV and CPFV to understand the economics of each industry?

Historically, CARB commercial and passenger boats were in the same vessel category, regulated in the same manner. The proposed regulations would remove passenger boats. Was this decision political? Who made this decision? What analysis was done to support the decision?

We have been told that the offshore nature of commercial fishing operations contributed to the differentiation but many if not the majority of those operations occur near shore targeting lobster, crab, squid, and bait fish, among other things. Near-shore operations may well constitute a larger percentage of commercial fishing than CPFV operations.

Why will commercial fishing boats continue to have access to Carl Moyer funding (State grants) that help subsidized the cost of repowering to lower emission engines and passenger sportfishing/whale watching boats will be denied or have more restricted access once the regulations are adopted?

Given that passenger boats represent only 10% of all harbor crafts, why not return them to the same vessel category as commercial fishing boats?

Commercial fishing vessels and CPFVs were categorized together and treated equivalently in the last CHC regulations 10 years ago. Why was commercial fishing separated from CPFV before the first iteration of the current rulemaking was even announced and published? Has CARB made available to the public all communications and discussions regarding what led to that differentiation? If not, please provide."

Response 3195.55: See detailed Response 3195.14 regarding CPFV vs. CFV applicability and Response 133 regarding "six-pack" vessels. See also Response 1.7 et al. describing the 15-day change for CPFV.

See Appendix E of the ISOR, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, Chapter IV beginning on page E-39 for more information on CSU Maritime's 2019 Tier 4 Feasibility Study.

CPFV and whale watching vessels will continue to have access to Carl Moyer funding, if eligible, for emissions reductions surplus to requirements, either occurring before compliance deadlines or adopting cleaner than required technology.

CARB staff has discussed the basis of requirements for CPFV and CVF in the Staff Report and its appendices. Additionally, CARB staff has posted webinar recordings, fact sheets, draft rulemaking documents and analyses, presentation slides, and related documents dating back to December 2018, which are available on CARB's CHC Program website.³⁰

Comment 3195.57: "On behalf of CPFV's throughout the state of California, SAC and GGFA recommend the following modifications to the current CHC amendment: ...

That inspected CPFVs continue to be considered "Fishing Vessels" and receive the same compliance deadlines as the Commercial Fishing Vessels (CFVs), with Tier 2 serving as final compliance – which staff purposely drafted in a manner to continue to allow CFV's continued access to grant funds. Tier 0 and Tier 1 engines will follow the proposed replacement and low usage exemption requirements. This will result in a logical, consistent path for commercial fishing vessels and CPFVs to reduce their emissions while still being able to overcome the financial hardship of repowers to Tier 3. Grant money would be available to all vessels regardless of operational area and is the appropriate path to finance the repowers vs. putting a boat out of business. Many CPFVs are already Tier 3 and over 26 are scheduled for Tier 3 repowers just in the South Coast in the next two-years (if applications are approved). The repower boatyard serving L.A. and Long Beach areas indicate that 100% of the 15 CPFVs in that area have already converted to Tier 3."

Response 3195.57: See response to Comment 3195.14. Grant funding is beyond the scope of this rulemaking.

Comment 3261.2: "The proposed amendments to the commercial harbor craft (CHC) regulation would (1) for the first time separate CPFV from commercial fishing vessels (previously combined in a single category with the same requirements), and (2) expand more stringent emission reduction requirements to CPFV engines than to commercial fishing vessel engines. Both CPFV and commercial fishing vessels must be licensed by the California Department of Fish and Wildlife, use similar sizes and types of boats, spend most of their operating time far away from population centers, and are often used interchangeably, depending on the season, making it unclear how the proposed regulation would apply when a vessel is used for both purposes. These vessels are unlike any other category of vessel that will be affected by the proposed amendments, and it seems inappropriate to divide them into separate categories."

³⁰ CARB, CHC Meetings & Workshops, <https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft/chc-meetings-workshops>.

Response 3261.2: See response to Comment 3195.14.

Comment 3261.8: “[CARB assumes] that CPFV vessels are used solely for passengers when many are used in the off season for commercial fishing, and providing no indication of how such vessels will be regulated under the proposed amendments.”

Response 3261.8: See Response 3195.14 and Response to Comment 3261-2 in the Response to Comments on the Draft EA.

Comment 3261.15: “The [Fish and Game] Commission urges CARB to direct its staff to modify the proposed regulation changes to maintain CPFVs and commercial fishing vessels in the same vessel category and to work with the sport fishing and commercial fishing industries to develop regulations that are economically feasible—with adequate funding assistance—to incentivize continuing to lower engine emissions and prepare the fleets for ultimate conversion to zero emission technologies.”

Response 3261.15: See response to Comment 3195.14 and Response 1094.3 et al. regarding funding.

Comment 3338: “The genesis of the early pre-release separation of CPFV from CFV also remains an unanswered question, though staff has acknowledged substantial data errors. Instead of seeking true, accurate, and informative data, they've doubled down, refused to adjust, and present to you a proposal founded on incomplete and wrong data assumptions and conclusions. A clean environment is a shared goal, but progress should be intelligent and thoughtful, informed by the full suite of consequences, not just narrative driven sound bites.”

Response 3338: See Response 696.8 regarding the extensive public process CARB staff undertook in this rulemaking, and Master Response 3 in the Response to Comments on the Draft EA regarding data accuracy and assumptions.

In the Current Regulation, CPFVs and CFVs share the same requirements, and the definition of “fishing vessels” in the Current Regulation includes both of these categories. The 2022 Amendments do not have the same requirements for CPFVs and CFVs, and therefore define them separately. See Chapter I of the ISOR for information on vessel classification, and Chapter IV for Rationale of Subsection 93118.5(c)(13). CARB staff recognizes that CPFVs do share the small profit margins and demonstrated lack of feasibility for Tier 4 repowers and retrofits, therefore, as directed by the Board in Resolution 22-6, proposed a 15-Day modification to the 2022 Amendments that would establish a one-time, 10-year extension for CPFVs that meet the Tier 3 standard by the end of 2024 (see Response 1.7 et al.).

k. Articulated Tug Barges (ATB)

Comment 3117.1: “The proposed amended CHC Regulation continues to fail to address the unique nature of ATBs. Unless Crowley is able to use an Alternative Control of Emissions (“ACE”) plan, the engine retrofit and replacement requirements of the proposed CHC Regulation would render Crowley’s ATBs uneconomical to operate in California.”

This would substantially disrupt interstate commerce by forcing the trade of current and future liquid energy products in, and to and from, California's ports to use oil tankers that are less flexible. It would also render such energy transportation more expensive."

Response 3117.1: No changes were made to the Regulation Order in response to this comment. Please refer to Response 3117.6.

This comment does not provide CARB staff with an adequate explanation of the "unique nature of ATBs." Articulated tug barges (ATBs) are regulated by USCG as Subchapter M towing vessels (CHC) and have been subject to CARB's current CHC Regulation since 2009. ATB barges are regulated by USCG as Subchapter O petrochemical tank barges (barges under 400 feet are a CHC category regulated by the current CHC Regulation) and have been exempt from CARB's current CHC Regulation due to being over 400 feet in length. Consequently, many ATB barge engines on older ATBs operating in RCW are unregulated pre-Tier 1 engines with relatively high emissions factors. Based on CARB CHC Program staff's understanding of ATB operating characteristics and in order to best control emissions from all operating modes of both ATB tugs and barges, CARB intends to continue regulating ATB tugs under the Amended CHC Regulation and will now subject the engines on ATB barges to the in-use performance standards and compliance timelines applicable to barges in the 2022 Amendments.

CARB staff has met with Crowley, Kirby Corp, Vane Brothers, and other ATB operators throughout this rulemaking process, which began in 2018. While Crowley has submitted detailed cost estimates on a number of ATB barge compliance scenarios including costs for engine repowers/retrofits and barge modifications for use with capture and control technologies, when CARB staff requested more data on ATB business activities with California refinery companies and operating locations inside RCW, no ATB operators provided any of these business details. Therefore, in this four-year rulemaking process, CARB staff has received no data that supports the claim that CARB CHC Regulation-compliant ATBs would be uneconomical to operate in California.

CSU Maritime's 2019 Tier 4 Feasibility Study showed ATB barges had feasibility to repower/retrofit to Tier 4 marine engines. CARB staff has included numerous provisions in the Regulation Order to provide compliance flexibility and extend engine useful life including a number of compliance deadline extensions and an ACE plan providing eligible applicants greater flexibility on compliance methods utilized by fleet operators.

Comment 3117.2: "Crowley welcomes the proposed amendments' embrace of alternative compliance pathways, but the guidance they give on appropriate ACE plans do not allow for meaningful alternatives for Crowley's fleet of ATBs. The regulations need to be further refined to ensure more flexibility for compliance as to ACE plans.

Above all, Crowley urges CARB to work with Crowley to design, approve, and deploy alternative compliance pathways to include those discussed herein."

Response 3117.2: No changes to the Regulation Order were made in response to this comment. CARB staff has included provisions in the Regulation Order for compliance deadline extensions and an ACE plan for eligible stakeholders. See Response 3158.1 et al.

Comment 3117.3: “Crowley has been actively engaged with CARB, especially over the past 2½ years, to address the unique nature of ATBs. The focus of these discussions has been what Crowley sees as CARB’s misapprehension of the nature of ATB operations, which has resulted in their being covered by what Crowley respectfully submits is the wrong regulatory scheme.

The initial phase of the CHC regulations issued in 2007, and their 2010 amendments, chose to include ATBs within the definition of “commercial harbor craft”, despite the fact that, especially from an operational perspective, it made, and makes, no practical sense to do so.

ATBs do not operate like traditional harbor craft. The operational profile of larger ATBs, as employed in Crowley’s fleet, is equivalent to that of self-propelled ocean-going tank vessels (Medium Range “MR” Tankers). As Crowley has demonstrated in its prior submissions to and discussions with CARB, ATBs are ocean-going tank vessels. Unlike harbor craft, ATBs do not operate predominantly in California ports and harbors. The operational profile of ATBs, when in California to load or discharge cargoes, bears no resemblance to the operations of harbor tugs.

When the revisions of the 2007 Ocean-Going Vessels At Berth Regulation (At Berth Regulation) were proposed in 2019, an opportunity arose for CARB to recognize the anomaly of regulating ATBs as if they were harbor craft, and to include ATBs in the At Berth Regulation, so that they could be regulated in the same way as other ocean-going tank vessels. Since at least as early as the spring of 2019, Crowley has made clear, in both its public comments and its informal discussions with CARB Staff and Board Members, that the exclusion of ATBs from the At Berth Regulation would be a serious mistake, based on a misconception of the nature of ATBs and their operation, and that this regulatory error should and could be rectified through amendment of the At Berth Regulation to include ATBs, like other ocean-going tank vessels.

Unfortunately, CARB did not rectify this error and did not include ATBs in the At Berth Regulation.

Instead, CARB resolved to recognize the unique nature of ATBs in these proposed amendments to the CHC Regulation. On August 27, 2020, CARB adopted Resolution 20- 22, which included the following:

BE IT FURTHER RESOLVED that the Board directs staff to continue to engage the articulated tug barge (ATB) industry to determine the best options for cost-effective emission reductions that recognize the unique nature of ATBs as CARB updates the commercial harbor craft regulation.

In the context of the current CHC Regulation amendments, the resolution directed CARB Staff to address the unique nature of ATBs, and to focus on achieving emissions reductions that are cost-effective for ATBs.”

Response 3117.3: No change was made to the 2022 Amendments in response to this comment. CARB disagrees with the commenter’s assertion that ATBs do not operate like other vessels regulated under the California CHC regulation. The commenter’s statement that “traditional harbor craft predominately operate in California ports and harbors”

misstates the fact that the CHC regulation applies to commercial vessels that operate in RCW, which includes waters extending up to 24 nautical miles from the California baseline. Instead, information in the rulemaking record indicates that ATBs and the tugboats pushing such ATB barges regularly operate in RCW.³¹

CARB staff understands that ATBs regularly transit along the coast in shipping lanes approximately 50 nautical miles from shore. However, ATBs regularly transit through RCW to and from anchorages and California (CA) refinery terminals inside RCW. CARB's Emissions Inventory shows ATB tugs generate significant transit emissions inside RCW and CARB staff was told by Crowley that ATB barge engines also generate transit emissions en route to refinery terminals to test and warm up auxiliary engines in the hour before docking at a terminal. ATB tugs and barges at anchor generate emissions from both tug and barge auxiliary generator engine operation. CARB staff observed during a 2018 ATB vessel visit that when docked at refinery terminals to offload petrochemical product, ATB tugs and barges will separate pinned connections to allow for changes in barge draft height due to load condition changes in the barge as product is offloaded and ballast water is loaded or vice versa. CARB staff was told ATB barges regularly run product and ballast water pump engines at high loads for extended periods of time of up to 24 or 36 hours at a refinery terminal. Many ATB barges operate a combination of multiple auxiliary engines in various applications with cumulative power in the range of three to four megawatts during product and ballast water pumping activity. From CHC Reporting Database, CARB staff is aware many ATB barge auxiliary engines operating in RCW are unregulated pre-Tier marine engines due to a loophole in the current CHC Regulation (from 2008 to the end of 2022) that exempted ATB barge engines from the In-Use Rule portion of the current CHC Regulation due to all ATB barges being over 400 feet in length.

ATB barge emissions heavily impact DACs surrounding many CA refinery terminal locations that are already disproportionately impacted by emissions from other CHC sectors and freight-related activities. CARB staff has visited one ATB operator during this Rulemaking, have met numerous times with Crowley and other ATB operators, and do understand the dual-mode operational and design details of ATB vessels. CARB staff believes the ATB industry can do much more to reduce emissions from ATB activity inside RCW. The 2019 CSU CMA Tier 4 Feasibility Study demonstrated that the ATB barge evaluated had feasibility for Tier 4 engines or exhaust retrofit technologies to reduce emissions from this significant source category. CARB is now closing this loophole to regulate emissions from ATB barges.

CARB also disagrees with the commenter's statements that ATBs are operated analogously to self-propelled ocean-going tanker vessels. As CARB staff explained in the Staff Report for the CHC 2022 Amendments, an ATB tug and barge is dissimilar to an ocean-going vessel because the tug and ATB barge combination is capable of being separated into two separate vessels, even if the tug and barge do not commonly operate independently. ATB tugs have always been subject to the in-use requirements of the Current Regulation. Additionally, ATB tugs and barges are recognized as dual-mode vessels and are regulated separately by USCG. Moreover, because ATBs are competing with line-towed petrochemical tank barges with

³¹ Appendix H to Staff Report at p. H-6.

most operating over intermediate distance voyages in coastal trade of clean petroleum products, ATBs are more similar in design and operation to other CHC³² engaged in line towing.

CARB also disagrees with the commenter's assertion that it would not be rational or commercially fair to regulate ATBs under the CHC regulation when CARB has elected to regulate ocean-going tankers under the Control Measure for Ocean-Going Vessels At-Berth Regulation.³³ First, as explained above, CARB has determined that ATBs generally operate inside RCW or in coastal trade rather than on trans-oceanic voyages and are sufficiently dissimilar from ocean-going vessels (OGV). Second, as explained in Response 2602.1, CARB has broad and extensive authority to regulate the emissions of air pollutants generated from marine vessels. Third, as also explained throughout this rulemaking action, the CHC 2022 Amendments establish a coordinated suite of emissions-related requirements that are needed to reduce the emissions of air pollutants generated by CHC to the maximum extent possible.

The CHC 2022 Amendments establish emissions-related requirements that are collectively more stringent than the emissions-related requirements established under the At-Berth Regulation, because the At-Berth Regulation currently only requires OGVs to reduce emissions generated from engines while OGVs are docked at berth at California ports.³⁴ Although the CHC 2022 Amendments also establish requirements that require CHC to limit emissions while they are docked, the 2022 Amendments additionally also establish requirements that are applicable to CHC vessels while they are operated in RCW. For instance, the 2022 Amendments require CHC to be fueled with renewable diesel fuel having a sulfur limit not to exceed 15 parts per million (ppm), whereas OGVs operating in RCW are only required by a separate CARB regulation to be fueled with marine gas oil or marine diesel oil with maximum sulfur limits of 0.1% sulfur by weight,³⁵ (equivalent to 1000 ppm of sulfur). Furthermore, the CHC 2022 Amendments establish requirements applicable to both newly acquired and in-use propulsion and auxiliary engines in CHC that are absent in the At Berth regulation. Consequently, regulating ATBs under the At Berth Regulation would result in increased emissions of harmful air pollutants that adversely impact the health and environment of Californians compared to the 2022 Amendments. Accordingly, there is a rational basis for CARB to regulate ATBs under the CHC regulation rather than the At-Berth regulation.

Moreover, the commenter's assertion that the CHC 2022 Amendments will impose significantly different emissions control requirements is incorrect, because the subject requirements apply to all ATBs that are operated in RCW. See section E.3.h. of the SRIA for more detail.

³² Staff Report, p. I-6.

³³ CARB, Final Regulation Order: Control Measure for Ocean-Going Vessels At-Berth, 2020, last accessed June 28, 2021, <https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/fro.pdf>.

³⁴ 17 CCR §§ 93130.1; 93130.7

³⁵ 17 CCR § 93118.2(e)(1)

CARB staff has established an ACE option that will allow all CHC, including ATBs, to comply with the 2022 Amendments as a compliance alternative to meeting the primary emissions performance standards. The ACE option allows an owner or operator to elect to control auxiliary engine emissions (including from tank barges), in a manner that is analogous to the controls used by ocean-going ships to comply with CARB's At-Berth regulation provided equivalent or additional reductions are achieved relative to meeting the primary emissions performance standards. The Control Measure for Ocean-Going Vessels At-Berth requires all OGVs subject to the emission control requirements of the regulation to utilize a CARB Approved Emission Control Strategy (CAECS), which includes shore power to control emissions while at berth. For example, if ATB owners and operators elect to control their auxiliary emissions on tugs and barges using a CAECS, they would only need to ensure that the emissions from main engines and auxiliary engines combined are equal to or lower than direct compliance with the 2022 Amendments.

Comment 3117.6: "Absent the ability to comply with the emissions reduction requirements through alternative compliance pathways, the effect of these Proposed Amendments, as they are currently proposed, will therefore likely be that Crowley can no longer operate its ATB fleet in California. Given the flexible, safe, efficient and cost-effective transportation option California would have a potentially far-reaching impact for Californians.

If the interstate clean petroleum product and emerging, new liquid energy trade, with California no longer has the option to use ATBs, it would instead be forced to charter MR Tankers to carry such products to and from California ports. ATBs of more than 120,000 bbl. capacity are the functional equivalent of MR Tankers and are, therefore, relatively interchangeable with those vessels in operational markets. MR Tankers are not proposed previous At Berth Regulation.

The proposed amended CHC Regulation would therefore not have its intended beneficial effect on California emissions. Should the CHC Regulation be issued as proposed, without addressing a meaningful ACE for ATBs, ATBs will be displaced on the West Coast with MR Tankers enjoying a lower regulatory threshold and having the perverse result of increasing the carbon intensity, particulate matter and GHG discharges for the equivalent of liquid energy cargo carried in and to and from California ports into the future.

This would also have a substantial adverse impact on interstate commerce and is contrary to what this rule was designed to accomplish in terms of environmental justices and health benefits to the people of California.

Regulating ATBs as harbor craft is inconsistent with the federal regulatory scheme and regulations of other jurisdictions. Crowley ATBs operate at multiple ports of call across the United States and internationally. They are regulated as ocean-going vessels under numerous applicable regulations, subjecting them to domestic and international emission and engineering control specifications. If regulated as harbor craft under the proposed CHC Regulation, ATBs and self-propelled tank vessels will face significantly different emissions control requirements in California, despite performing the same function elsewhere and regulated as oceangoing vessels, as is their MR Tanker competition. This would be neither rational nor fair commercially, because self-propelled bulk liquid tankers – many of which fly foreign flags of convenience to escape many of the requirements of U.S. environmental and

regulations – are ATBs’ competition in interstate and international commerce and regulated under the CARB At Berth Regulation.”

Response 3117.6: No change was made to the Regulation Order in response to this comment. Given the general nature of this comment, it is not possible to respond with specificity. Therefore, CARB provides the following general response.

CARB disagrees with the comment that regulating ATBs as harbor craft is inconsistent with the federal regulatory scheme that allows California to establish emissions requirements for nonroad vehicles and engines. As discussed in Response 2602.1, Section 209(e)(2)(A) of the federal CAA expressly provides that California can adopt and enforce emissions standards and other emissions-related requirements for new or in-use nonroad vehicles or nonroad engines, provided California obtains an authorization from U.S. EPA pursuant to section 209(e)(2). CAA section 209(e) therefore makes clear that California’s authority to regulate emissions of air contaminants extends to both marine vessels and the engines powering such marine vessels.

Neither the ATB Nor the CHC 2022 Amendments Impermissibly Burden Interstate Commerce

To the extent the comment asserts that regulating ATBs as harbor craft impermissibly burdens interstate commerce, CARB disagrees with that assertion.

Article I, §8, cl. 3 of the United States Constitution states that the Congress has the power “[t]o regulate Commerce among the several States.” Courts have long recognized that this affirmative grant of power also includes an implicit or “dormant” limitation on the authority of states to affect interstate commerce. *Healy v. Beer Institute*, 491 U.S. 324, 326, fn 1 (1989).

The threshold issue to be resolved in a Commerce Clause challenge to a state law is whether Congress has exempted that law from Commerce Clause scrutiny. Congress’ enactment of the CAA provisions allowing only California, in the first instance, to adopt and enforce new vehicle emission standards and other emission related requirements, and new and in-use nonroad vehicle and engine standards and emission-related requirements in §§ 209(b) and 209(e)(2)(A) of the federal CAA, respectively, clearly evidence its intent to exempt California’s motor vehicle and nonroad vehicle and engine standards and emission-related requirements from Commerce Clause restrictions. Furthermore, the legislative history of the federal CAA indicates that Congress was fully aware that allowing states to establish their own separate motor vehicle emission standards would disrupt interstate commerce, and it therefore preempted the states from establishing their own motor vehicle emission standards. However, Congress specifically exempted only California from the federal CAA section 209(a) preemption. “Rather than being faced with 51 different standards, as they had feared, or with only one, as they had sought, manufacturers must cope with two regulatory schemes under the legislative compromise embodied in § 209(a).” *Engine Mfrs Ass’n v. U.S.E.P.A.*, 88 F.3d 1075, 1079 (D.C. Cir. 1996). See also *Motor and Equipment Mfrs. Ass’n, Inc. v. E.P.A.*, 627 F.2d 1095, 1108 – 1111 (D.C. Cir. 1979). Congress determined that authorizing California to establish separate and more stringent standards than those applicable to the rest of the nation would not unduly disrupt interstate commerce. Instead of a Commerce Clause review, Congress enacted in sections 209(b) and 209(e) of the federal

CAA a procedure requiring the Administrator of the U.S. EPA to review California's regulations and to authorize it to adopt and enforce its unique emission standards and other requirements.

Therefore, both the text and history of the motor vehicle and nonroad preemption and waiver provisions of the federal CAA indicate that Congress intended to exempt the CHC requirements (including the requirements applicable to ATBs at issue) from Commerce Clause scrutiny.

Even if Congress did not exempt the CHC or ATB requirements at issue from Commerce Clause scrutiny, as demonstrated in greater detail below, those requirements are not inconsistent with the provisions of the Commerce Clause. In determining whether a state law violates the Commerce Clause, a court first determines if the law discriminates against interstate commerce, either on its face or in practical effect (*Hughes v. Oklahoma*, 441 U.S. 322, 336 (1979)), i.e., if the law accords differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter. Such laws are virtually per se invalid. *United Haulers Ass'n, Inc. v. Onedia-Herkimer Solid Waste Management Authority*, 550 U.S. 330, 338 (2007), and will only survive if they "advance[] a legitimate local purpose that cannot be adequately served by reasonable nondiscriminatory alternatives." *Oregon Waste Systems Inc. v. Department of Environmental Quality of State of Oregon*, 511 U.S. 93, 100-101 (1994).

The CHC and ATB requirements neither facially discriminate nor discriminate in practice against interstate commerce because they only apply to CHC and ATBs that are sold, purchased, leased, rented or otherwise acquired for operation or that currently operate in RCW. The requirements do not apply to CHC or ATBs equipped with engines that are certified to federal marine emission standards and that are sold in States other than California or that are operated outside of RCW.

The U.S. Supreme Court has held in certain situations that a state law that directly regulates commerce outside of that state's boundaries violates the Commerce Clause. This principle has been referred to as the extraterritoriality branch of the dormant Commerce Clause. In *Healy v. Beer Institute*, 491 U.S. 324 (1989), the U.S. Supreme Court held that a Connecticut price affirmation statute for beer violated the Commerce Clause because it regulated out-of-state commerce by controlling prices and marketing practices in other states. Specifically, that statute effectively required interstate beer sellers to forego available promotional and volume discounts in other states, which deprived those sellers of any competitive advantages that might exist in bordering States. The *Healy* Court also found that the statute facially discriminated against interstate commerce. *Healy* 491 U.S. 324, 340 (1989).

In *Edgar v. MITE Corp.*, 457 U.S. 624 (1982), a plurality of the U.S. Supreme Court would have invalidated a statute regulating corporate takeovers on extraterritoriality grounds. The plurality found the statute would allow Illinois to regulate out-of-state transactions that had no significant connections to Illinois (i.e., the statute could be applied to regulate tender offers that would not affect a single Illinois shareholder). However, a majority of the Court ultimately invalidated the statute under the *Pike* balancing test discussed below.

The U.S. Supreme Court has not held, however, that the extraterritoriality doctrine *per se* invalidates state regulations that incidentally or indirectly regulate out-of-state commerce, but has upheld a state's ability to regulate extraterritorial commerce that has a direct nexus to that state and that substantially impacts that state. In *CTS Corp. v. Dynamics Corp. of America*, 481 U.S. 69 (1987), the Court upheld an Indiana corporate takeover statute against a Commerce Clause challenge. The Court distinguished that statute from the Illinois statute in *MITE* in that the Indiana statute only applied to corporations with substantial numbers of shareholders in Indiana and would therefore affect a substantial number of Indiana residents. *Id.* at 93. The Court notably did not hold that the statute was invalid simply because it could also possibly regulate out-of-state transactions (i.e., non-Indiana corporations seeking to purchase shares from non-Indiana shareholders). Federal Courts of Appeal have similarly rejected assertions that state regulations that only incidentally affect out-of-state transactions are *per se* invalidated by the extraterritorial doctrine. *Alliant Energy Corp v. Bie*, 336 F.3d 545 (7th Cir. 2003).

The ATB requirements do not raise the same issues that concerned the *Healy* and the *MITE* Courts. Unlike the price affirmation statute in *Healy*, the ATB requirements do not practically regulate commercial activity beyond California's borders; because those requirements only apply to ATBs that are sold and operated in RCW, they do not and cannot affect ATBs that are equipped with engines certified to federal marine engine standards and that are sold in States other than California or that are operated outside of RCW.

Even assuming, *arguendo*, that the ATB requirements incidentally or indirectly affect out-of-state commerce, they do not directly regulate out-of-state commerce in a manner that is inconsistent with the Commerce Clause. Unlike the *MITE* statute, the ATB requirements have a significant nexus to California interests – the requirements were specifically developed to ensure that ATBs, in addition to other categories of CHC, achieve the maximum feasible and cost-effective emission reductions of air pollutants that adversely affect the public health, natural resources, and environment of California. The ATB requirements are therefore more akin to the statute in *CTS* because they have a direct nexus to the emissions of air pollutants that substantially impact California, and are therefore consistent with the extraterritoriality doctrine.

If a court determines that a state law does not discriminate against interstate commerce or directly regulate commerce outside of the state's boundaries, it then balances the law's local benefits against its burdens on interstate commerce to determine if the law violates the federal Commerce Clause. *Pike v. Bruce Church*, 397 U.S. 137, 142 (1970). The Supreme Court has stated that state regulations frequently pass muster under the Pike test. *Department of Revenue of Ky. v. Davis*, 533 U.S. 328, 339 (2008). Under this test the state law will be upheld unless it imposes a burden on interstate commerce that is clearly excessive in relation to the putative local benefits. "If a legitimate local purpose is found, then the question becomes one of degree. And the extent of the burden that will be tolerated will of course depend on the nature of the local interest involved, and on whether it could be promoted as well with a lesser impact on interstate activities." *Ibid.* Furthermore, courts will accord a greater presumption of validity to a state's laws in the field of safety. *Pike*, 397 U.S. 137, 143.

Courts recognize that preventing air pollution is and has been a traditional local safety concern. *Huron Portland Cement Co. v. Detroit*, 362 U.S. 440, 445-446 (1960). This recognition is also expressed in the federal CAA section 101(a)(3), where Congress declared that states and local governments are primarily responsible for preventing air pollution, and in California H&SC sections 39000 and 39001, where the California legislature declared a strong public interest in controlling air pollution to protect the “health, safety, welfare, and sense of well-being” of Californians.

As documented in the record for this rulemaking action: the affected categories of CHC, including ATBs, and the engines powering such vessels are significant sources of criteria pollutants, and TACs, in addition to sources of GHGs (including SLCPs). The CHC and ATB requirements establish requirements to reduce the quantities of such air pollutants and are therefore an important element of CARB’s strategy to reduce such emissions. These considerations establish that this regulation serves the legitimate public purpose of protecting the health and welfare of California’s residents, which purpose “clearly falls within the exercise of even the most traditional concept of what is compendiously known as the police power.” *Huron Portland Cement Co.*, 362 U.S. at 442.

If a court determines that the justifications for a state safety-based regulation are not illusory, as it would likely find in this case, it will accord the regulation significant deference. *Raymond Motor Transportation v. Rice*, 434 U.S. 429, 449 (1978) (Blackmun, J., concurrence). The court will then assess the regulation’s burden on interstate commerce. The CHC and ASB requirements at issue here do not unduly burden interstate commerce because the requirements only apply to ATBs and CHC that are sold and used in RCW, so that the entirety, or vast majority of the associated compliance costs will be passed by manufacturers to onto California consumers. Moreover, as discussed in the immediately preceding paragraph, the CHC and ATB requirements provide significant benefits to California because they will limit and reduce the levels of emissions of harmful pollutants that are emitted by CHC and ATBs. These considerations demonstrate that the CHC and ATB requirements do not impose a burden on interstate commerce that clearly exceeds its benefits of protecting the health and welfare of California’s residents, and would likely be held not to unconstitutionally burden interstate commerce under the *Pike* balancing test.

Neither the ATB Nor the CHC 2022 Amendments Are Preempted by Federal Law

Neither the ATB requirements nor the CHC 2022 Amendments are preempted by federal statutes that establish vessel design, equipment or safety features, or air pollution emission requirements. In deciding whether a state law conflicts with, and is therefore preempted by a federal law, a court starts with the assumption that the state law is not preempted unless that was “the clear and manifest purpose of Congress.” *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947). A court will first determine whether the state law is expressly preempted. If it is not, the inquiry then turns to whether Congress implicitly intended to preempt the state law. *Chevron U.S.A., Inc. v. Hammond*, 726 F.2d 483, 486 (9th Cir. 1984).

There are two categories of implied preemption – field preemption “where the scheme of federal regulation is ‘so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it’”, *Gade v. Nat’l Solid Waste Mgmt Assn.*, 505 U.S. 88,

98 (1992), quoting *Fidelity Federal Sav. And Loan Ass'n v. de la Cuesta*, 458 U.S. 141, 153 (1982), *Rice v. Santa Fe Elevator Corp.* 331 U.S. 218, 230 (1947), and conflict preemption, in which " 'compliance with both federal and state standards is a physical impossibility' ", 505 U.S. 88, 98 quoting *Florida Lime & Avocado Growers, Inc. v. Paul* 373 U.S. 132, 142-143, (1963) or where the "state law 'stands as an obstacle to accomplishment and execution of the full purposes and objectives of Congress.' ". 505 U.S. 88, 98 quoting *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941), *Felder v Casey*, 487 U.S. 131, 138 (1988), *Perez v. Campbell*, 402 U.S. 637, 649 (1971).

No Express Preemption by the Ports and Waterways Safety Act (PWSA)

The PWSA; 46 U.S.C. § 700133 et seq., 46 U.S.C. § 3703,³⁶ provides for vessel safety and the protection of the marine environment through the promulgation of comprehensive minimum standards of design, construction, alteration, repair, maintenance, and operation of vessels carrying bulk cargoes, primarily oil and fuel tankers. The PWSA does not expressly preempt state regulations, but the United States Supreme Court has determined that the PWSA implicitly preempts state regulations that establish design and construction requirements for covered vessels. *U.S. v. Locke*, 529 U.S. 89 (2000), and *Ray v Atlantic Richfield Co.*, 435 U.S. 151 (1978).

PWSA Field Preemption is Limited to Generally Applicable Vessel Design and Operational Requirements Related to Navigation and Safety, and Does Not Preempt Reasonable and Non-Discriminatory State Environmental Regulations

Both the *Locke* and *Ray* courts concluded that specific subsets of the state regulations at issue in those cases were impliedly preempted by Title II of the PWSA, which requires the USCG to issue regulations addressing the "design, construction, alteration, repair, maintenance, operation, equipping, personnel qualification, and manning of affected vessels.... [t]hat may be necessary for increased protection against hazards to life and property, for navigation and safety, and for enhanced protection of the marine environment." 529 U.S. 101, citing 46 U.S.C. § 3703(a).

Specifically, the *Locke* court held that the State of Washington's regulations that established generally applicable requirements, namely: training and drill requirements for a tanker vessel's crew members, required crew members to be proficient in English, established navigation watch requirements, and that required reporting of marine casualties, were impermissibly directed to the same considerations and factors enumerated in Title II of the PWSA and were accordingly preempted. However, the *Locke* court also noted that Washington's remaining regulations, which appeared to establish requirements needed to address the peculiarities of the State's waters and had limited extraterritorial effect, could be

³⁶ The Frank LoBiondo Coast Guard Authorization Act of 2018 (Authorization Act), Public Law 115-282, 132 Stat. 4192, enacted on December 4, 2018, redesignated multiple provisions within U.S.C. titles 14, 33, 46, and 50, without substantive change, to reorganize these titles. The Authorization Act redesignated the Ports and Waterways Safety Act (PWSA) provisions, previously located in 33 U.S.C. 1221 through 1236, without substantive change into the new Chapter 700 of U.S.C. title 46, entitled "Ports and Waterways Safety." 85 Fed. Reg. 58268 (Sept. 18, 2020)

determined to not be preempted under a conflict preemption analysis of Title I of the PWSA, which the court had previously confirmed allows states to regulate ports and waterways based on the “peculiarities of local waters that call for special precautionary measures.” 529 U.S. 109, quoting *Ray v. Atlantic Richfield Co.*, 435 U.S. 171. The court noted that state regulations that were justified by unique local conditions, that had limited extraterritorial effect, that do not require adjustments of systemic aspects of vessels, and that do not impose substantial burdens on vessel operations within the local jurisdiction would more likely qualify for a conflict preemption analysis under Title I of the PWSA. 529 U.S. at 112.

In *Ray v. Atlantic Richfield Co.*, the U.S. Supreme Court held, in pertinent part, that provisions of the State of Washington’s Tanker Law that required both enrolled and registered³⁷ oil tankers with specified cargo-carrying capacities to meet specific vessel design requirements, including double bottoms beneath all oil and cargo compartments, twin propeller screws, and two radar systems, was preempted by Title II of the PWSA. 435 U.S. at 168. However, the *Ray* court also recognized that Congress’ intent to require uniform national standards for the design, construction, and operation of oil tankers in Title II of the PWSA did not extend beyond those vessel specifications, and that reasonable and nondiscriminatory state environmental regulations of vessels are accordingly not impliedly preempted:

We do not question in the slightest the prior cases holding that enrolled and registered vessels must conform to “reasonable, nondiscriminatory conservation and environmental protection measures . . .” imposed by a State. *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265, 277, 97 S.Ct. 1740, 1748, 52 L.Ed.2d 304 (1977), citing *Smith v. Maryland*, 18 How. 71, 15 L.Ed. 269 (1855); *Manchester v. Massachusetts*, 139 U.S. 240, 11 S.Ct. 559, 35 L.Ed. 159 (1891); and *Huron Portland Cement Co. v. Detroit*, 362 U.S. 440, 80 S.Ct. 813, 4 L.Ed.2d 852 (1960). Similarly, the mere fact that a vessel has been inspected and found to comply with the Secretary's vessel safety regulations does not prevent a State or city from enforcing local laws having other purposes, such as a local smoke abatement law. *Ibid.* But in none of the relevant cases sustaining the application of state laws to federally licensed or inspected vessels did the federal licensing or inspection procedure implement a substantive rule of federal law addressed to the object also sought to be achieved by the challenged state regulation. *Huron Portland Cement Co. v. Detroit*, for example, made it plain that there was “no overlap between the scope of the federal ship inspection laws and that of the municipal ordinance . . .” there involved. *Id.*, at 446, 80 S.Ct., at 817. The purpose of the “federal inspection statutes [was] to insure the seagoing safety of vessels . . . to affor[d] protection from the perils of maritime navigation,” while “[b]y contrast, the sole aim of the Detroit ordinance [was] the elimination of air pollution to protect the health and enhance the cleanliness of the local community.” *Id.*, at 445, 80 S.Ct., at 817.

³⁷ Enrolled vessels are those vessels engaged in domestic or coastwide trade, while registered vessels are engaged in trade with foreign countries. 435 U.S. at 158, n.7

435 U.S. at 164.

The U.S. Court of Appeals for the Ninth Circuit has also determined that state environmental regulations are not preempted by Title II of the PWSA. *Chevron, Inc. v. Hammond*, 726 F.2d 483 (9th Cir. 1984). In *Hammond*, the court held that a statute enacted by the State of Alaska that prohibited oil tankers from releasing contaminated ballast water was not preempted by the PWSA. The court determined that Congress, in enacting the PWSA, did not intend to occupy the field of regulating pollution from oil tankers, but instead “recognized the need for collaborative federal/state regulation of the marine environment [through the federal Clean Water Act]” 726 F.2d at 495. “While design standards need to be uniform nationwide so that vessels do not confront conflicting requirements in different ports and so that the USCG can promote international consensus on design standards, there is no corresponding dominant national interest in uniformity in the area of coastal environmental regulation.” *Id.* at 493.

The CHC 2022 Amendments do not establish vessel design, construction, operation, personnel qualification, manning requirements, or navigational or safety requirements for affected vessels, and are consequently outside the scope of the state regulatory measures that the *Ray* and *Locke* courts held were preempted by the PWSA. The 2022 Amendments instead establish a nondiscriminatory environmental protection measure that is needed to reduce the harmful air pollutants emitted from vessels such as ATBs in order to protect the health and welfare of California’s residents, and is accordingly not preempted by the PWSA. *Ray*, 435 U.S. at 164, *Hammond*, 726 F.2d at 493.³⁸

The Requirements Are Not Preempted by the Submerged Lands Act

The U.S. Court of Appeals for the Ninth Circuit has also determined that California regulations that limit air pollutant emissions from ocean-going vessels are not preempted by the Submerged Lands Act (43 U.S.C. § 1301 et seq.), because the issue of a state’s limits in territorial waters is distinct from its rights to regulate conduct, and California regulations that

³⁸ The federal Clean Air Act, like the federal Clean Water Act, is structured upon Congress’ recognition and intent that addressing air pollution necessitates a collaborative effort between the states and the federal government. Congress recognized that “air pollution prevention... and air pollution control at its source is the primary responsibility of States and local governments” but that “federal financial assistance and leadership is essential” for this cooperative effort. CAA § 101(a). *Engine Mfr’s Ass’n v. U.S. EPA*, (EMA) 88 F.3d 1075, 1078 (D.C. Cir. 1996). In the context of regulating emissions from mobile sources, as discussed above, Congress generally preempted states from adopting separate emissions standards for on and off-road vehicles and engines, but expressly authorized only California, in the first instance, to establish separate emissions control programs to regulate on and off-road vehicles and engines. CAA §§ 209(b) and 209(e)(2); EMA, 88 F.3d at 1079-1082. The structure and legislative history of Title II of the CAA accordingly evidence Congress’ intent not to preempt California’s authority to regulate emissions from vehicles. “The history of congressional consideration of the California waiver provision ... from its original enactment up through 1977, indicates that Congress intended the State to continue and expand its pioneering efforts at adopting and enforcing motor vehicle emission standards different from and in large measure more advanced than the corresponding federal program.” *Motor and Equip Mfr’s Ass’n, Inc. v. EPA*, 627 F.2d 1095, 1110-1111 (D.C. Cir. 1979).

reduce air pollution from ships beyond California's territorial waters satisfy the "effects test".³⁹ *Pacific Merchant Shipping Ass'n v. Goldstene*, 639 F.3d 1154, 1168 (9th Cir. 2011).

The *Goldstene* court first determined that the California regulations at issue in that case (which required ocean going vessels to use specified cleaner fuels within 24 miles of California's coastline) qualified for the statutory presumption that a state regulation is not preempted by a federal law, because the regulation related to a control of air pollution, which courts have consistently determined constitute a state's historic police powers to protect the health of its citizens. 639 F.3d at 1167. The court then determined that no conflict existed between the Submerged Lands Act (which established a state's ownership of submerged lands off their coasts and a three mile seaward boundary from that state's coastline), and a state's authority to regulate conduct that adversely affects the economic interests or public welfare interests of a state. The court reasoned that the California regulation did not seek to extend California's territorial boundaries, but rather, consistent with the effects test, sought to regulate emissions generated from affected vessels that would adversely affect Californians.⁴⁰ 639 F.3d at 1177. "[A] state law regulating extraterritorial conduct outside of the state's territorial waters should generally be upheld if it satisfies the well-established effects test." 639 F.3d at 1174-1175.

Under the reasoning of the *Goldstene* court, it is clear that the CHC 2022 Amendments are not preempted by the Submerged Lands Act. Although the CHC 2022 Amendments establish requirements for CHC that operate within 24 miles of California's coastline, they do not seek to extend California's territorial boundaries, but rather establish reasonable requirements to reduce emissions generated from CHC that adversely affects Californians. CARB estimates that between 2023 and 2038, the 2020 CHC 2022 Amendments will reduce 1,610 tons of PM2.5, 1,680 tons of DPM, 34,340 tons of NOx, and 415,060 metric tons (MT) of GHG,⁴¹ and that such reductions will reduce premature deaths by 531 and hospital admissions for cardiovascular illness by 73.⁴² The 2022 Amendments therefore satisfy the effects test and are accordingly not preempted by the Submerged Lands Act.

The CHC 2022 Amendments Do Not Actually Conflict With Either the PWSA or the Submerged Lands Act (SLA)

An actual conflict exists if compliance with both federal and state standards is a physical impossibility. *Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 142-143 (1963), or if the state law stands as an obstacle to accomplishment and execution of the full purposes and objectives of Congress. *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941).

³⁹ A state may regulate conduct occurring outside of its territorial boundaries if the conduct has (or is intended to have) a substantial effect within the territory and the regulation itself is otherwise reasonable. See Restatement (Third) of Foreign Relations Law of the United States §§ 402(1)(c); *Strassheim v. Daily*, 221 U.S. 280, 287 (1911).

⁴⁰ The adverse effects of such emissions included causing at least 300 premature deaths every year. 639 F.3d at 1176.

⁴¹ ISOR at ES-4

⁴² ISOR at V-6

No actual conflict with either the PWSA or the SLA exists, because affected CHC owners can comply with both the PWSA and the SLA and the CHC 2022 Amendments. As previously discussed, the CHC 2022 Amendments do not establish vessel design, construction, operation, personnel qualification, manning requirements, or navigational or safety requirements for affected vessels, and consequently such 2022 Amendments do not prevent a CHC owner or operator from complying with both the PWSA and the USCG Regulations implementing the PWSA⁴³ and with the provisions of the 2022 Amendments. The Submerged Lands Act does not establish any requirements applicable to emission controls of CHC, and consequently present no actual conflict with the CHC 2022 Amendments.

Furthermore, the PWSA and applicable USCG regulations, the SLA, and the CHC 2022 Amendments can be enforced “without impairing the federal superintendence of the field,” *Hammond*, 726 F.2d 483, 497, n.18. As discussed above, the PWSA was primarily adopted to regulate aspects of vessel design, construction, and operations, and the Submerged Lands Act was adopted to establish state ownership of submerged lands and territorial rights to coastal waters, but neither statute was intended to preclude a state from adopting reasonable regulations to control air pollution from non-road sources that are needed to protect its citizens. Accordingly, neither statute (including implementing USCG regulations) actually conflicts with the CHC 2022 Amendments.

No Conflicts With International Law or General Maritime Law

The *Goldstene* court additionally held that the California regulations at issue did not impermissibly burden either domestic or foreign commerce, and were not preempted by general admiralty or maritime law, which generally allows states to “supplement federal admiralty law as applied to matters of local concern, so long as state law does not actually conflict with federal law or interfere with the uniform working of the maritime legal system.” 639 F.3d at 1178, quoting *Pacific Merchant Shipping Ass’n v. Aubry*, 918 F.2d, 1409, 1422 (9th Cir. 1990).

The court first found that the regulations were not intended to protect or favor California’s economic interests, but were instead enacted to protect California’s residents from the harmful effects of vessel pollution, that the regulations established even handed and generally applicable requirements, did not appear to discriminate against out-of-state interests, and therefore constituted “an environmental regulatory scheme having only an incidental or indirect effect on commerce.” 639 F.3d at 1179. The court then balanced California’s interests in protecting its residents from the environmental harms emitted from vessels against the interests in uniformity of maritime law and the interest of the federal government in foreign relations and international trade, and determined those latter interests were insufficient to outweigh California’s need for its regulations. In so ruling, the court noted that it would be inconsistent to strike down the regulations on the basis that they were inconsistent with the dormant Commerce Clause or the doctrine of general maritime law

⁴³ ATBs, in particular, are subject to 46 CFR Subchapters D and O.

preemption when California needed those same regulations to comply with federal ambient air quality standards.

In arriving at its conclusion, the court noted that the asserted interest in maintaining uniformity in the area of international efforts to control pollution from ocean going vessels, as established via Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL)⁴⁴, was undermined by the federal statute implementing that Annex, 33 U.S.C. § 1911, which contains a savings clause that clearly evidences Congress' intent that Annex VI only supplements, but does not limit, override, or repeal other requirements conferred by any other laws. 639 F.3d at 1180.

The *Goldstene* court's reasoning is equally applicable to the CHC 2022 Amendments. As previously demonstrated, the CHC 2022 Amendments do not discriminate against out-of-state interests, but instead establish reasonable and generally applicable requirements for affected CHC that travel within RCW and that emit harmful pollutants that adversely affect California residents and California's environment. The benefits of the 2022 Amendments are substantial – including the prevention of over 500 premature deaths per year,⁴⁵ and are therefore at least as protective of California's interests as the California regulations at issue in *Goldstene*, which were projected to reduce approximately 300 premature deaths per year.⁴⁶ Accordingly, there is no rational basis to preclude a determination that the CHC 2022 Amendments do not impermissibly burden foreign commerce or general admiralty or maritime law.

The CHC 2022 Amendments Do Not Violate the Foreign Commerce Clause

The CHC 2022 Amendments do not violate the Foreign Commerce Clause, which precludes states from enacting laws that "impair federal uniformity in an area where federal uniformity is essential" *Barclays Bank v. Franchise Tax Bd. of California*, 512 U.S. 298, 320 (1994) quoting *Japan Line Ltd v. Los Angeles County*, 441 U.S. 448, and therefore "prevent[] the Federal Government from 'speaking with one voice' in international trade," *Container Corp. of America v. Franchise Tax Bd*, 463 U.S. 159, 193 (1983) (citations omitted).

Congress arguably spoke with one voice when it enacted section 209(e) of the CAA, which expressly authorizes California to adopt and enforce both new and in-use emission standards and other emission related requirements for nonroad sources such as CHC (e.g., marine vessels) that are distinct from otherwise applicable federal emissions related requirements, and has accordingly arguably determined that authorizing California to regulate CHC does not impermissibly impair federal uniformity in an area where such uniformity is essential.

Moreover, as previously noted, the federal statute implementing Annex VI of MARPOL, which concerns international efforts to regulate air pollution from ocean going vessels,

⁴⁴ U.S. EPA, MARPOL Annex VI and the Act to Prevent Pollution from Ships (APPS), last accessed June 28, 2021, <https://www.epa.gov/enforcement/marpol-annex-vi-and-act-prevent-pollution-ships-apps#marpol>.

⁴⁵ See footnote 7.

⁴⁶ 639 F.3d at 1776.

contains a savings clause that clearly evidences Congress' intent that Annex VI only supplements, but does not limit, override, or repeal other requirements conferred by any other laws. Congress has therefore amply evidenced its intent that the collaborative federal/state effort envisioned within the framework of the CAA to reduce air pollution from nonroad sources does not impermissibly impair federal uniformity in the area of regulating emissions from CHC.

International Law Permits Coastal States to Regulate Vessels Visiting Their Ports California's Ports

It is also well established under international law that coastal states can impose reasonable conditions on vessels wishing to enter their ports, and consequently, vessels voluntarily entering such state waters and ports are subject such to rules and regulations. *Benz v. Compania Naviera Hidalgo, S.A.*, 353 U.S. 138, 142 (1957) ("It is beyond question that a ship voluntarily entering the territorial limits of another country subjects itself to the laws and jurisdiction of that country.") Accordingly, to the extent that elements of the CHC 2022 Amendments comprise port entry conditions applicable to foreign flagged vessels, those elements are consistent with international law.

It is also clear that as permitted by the federal CAA, California is authorized to regulate emissions generated from foreign vessels that affect the interests of its citizens, provided such regulations do not affect a matter that involves the "internal order and discipline" of the foreign vessel. *Spector v. Norwegian Cruise Line, Ltd.*, 545 U.S. 119, 131-132 (2005). In *Spector*, the United States Supreme court stated that general statutes are presumed to apply to conduct occurring on foreign-flagged vessels in United States territory, but do not apply to conduct involving the order and discipline of such vessels, absent a clear expression of congressional intent.

In this case, the CHC 2022 Amendments impose reasonable emissions-related requirements on affected CHC pursuant to California's authority under both state law and section 209(e) of the federal CAA. Congress has not expressly stated that section 209(e) applies to foreign-flagged vessels, but has broadly defined the scope of section 209(e) as extending to "nonroad sources" including CHC. Therefore, the determination of whether the CHC 2022 Amendments can apply to foreign-flagged vessels depends upon whether the 2022 Amendments involve only the "internal order and discipline" of the affected CHC and whether the affected CHC activities affect the interests of California's citizens.

CARB enacted the CHC 2022 Amendments to regulate and limit air pollution emitted from CHC that adversely affects the public health and welfare of California's residents. As stated above, such adverse effects include consequences such as premature death and increased hospital admissions. Consequently, it is clear that the 2022 Amendments affect the interests of California's citizens.

The CHC 2022 Amendments do not solely involve matters of CHC internal order and discipline, but instead establish uniform emissions-related requirements for affected CHC. The 2022 Amendments do not govern the duties or obligations between crew members on foreign-flagged CHC, but instead establish reasonable requirements that do not specify which crew members must fulfill such requirements, but that instead generally require

affected CHC to be equipped with devices enabling them to demonstrate compliance with specified emissions limits. Those requirements are distinguishable from the situation addressed by the U.S. Supreme Court in *McCulloch v. Sociedad Nacional de Marineros de Honduras*, 372 U.S. 10 (1963), which held that the National Labor Relations Act (NLRA) did not apply to a foreign-flagged vessel because it would directly affect (and conflict with international law) on the issue of which entity was authorized to represent crew members in negotiations regarding wages, and terms and conditions of employment. Accordingly, the CHC 2022 Amendments do not solely involve matters regarding the internal order and discipline of affected CHC and California is authorized to regulate affected foreign-flagged CHC that vessels that adversely affect the public health and welfare of California's residents.

Also see Response to Comment 3117-2 in the Response to Comments on the Draft EA.

Comment 3118.4: "Specifically, we urge CARB to replace this flawed rulemaking with a new approach that would:

- Exempt oceangoing tugs and barges, either towed on a wire or rigidly connected through an ATB system, which do not operate as harbor craft, and meet all the criteria set by CARB in its decision to exempt the commercial fishing fleet."

Response 3118.4: No changes were made to the Regulation Order based on this comment. CARB's current CHC Regulation has always had applicability to ocean-going towing vessels since 2008. See (b) Applicability (3) in the current CHC Regulation. Respectfully, ocean going tugboats are not commercial fishing vessels. There are many significant vocational and design differences leading to different operating locations and emissions profiles. This is why tugboats and commercial fishing vessels are placed in separate CHC emissions source categories in the emissions inventory. The commercial fishing vessel (CFV) fleet is not exempt from the Regulation Order. CFVs are subject to a Tier 2 minimum or will be required to upgrade engines to a Tier 3 standard according to the timeline outlined in the Regulation Order if engines are pre-Tier 2.

Comment 3118.7: "CARB's decision to exempt about 1,570 commercial fishing vessels (approximately 40% of the total CHC population) from the rule while not similarly exempting other vessels that meet the same criteria is arbitrary and capricious. This decision unfairly places 100% of the emission reduction burden of the CHC rule on 60% of the vessel population.

CARB's rationale for excluding these commercial fishing vessels applies equally to towing vessels that operate in coastal and international trade. Specifically

- Small profit margins;
- Demonstrated lack of feasibility for Tier 4 repowers and retrofits;
- Competition with out-of-state and global markets; and,
- Tendency to conduct most of their operations far from the coast.

Oceangoing tugs and barges, either towed on a wire or rigidly connected through an ATB system, are directly analogous in their operation to commercial fishing vessels and share all four criteria that led CARB to exempt those vessels. AWO submitted information in April

2020 showing that “repowering with EPA Tier 4 engines could be significant and cost prohibitive for some ship assist and escort tugs.” Similar technical challenges exist for oceangoing tugs, barges, and ATBs. These vessels commonly operate in interstate commerce in competition with self-propelled vessels in out-of-state and global markets. Additionally, the tugboats and barges operating in these markets are required by law to be U.S.-flagged, U.S.- owned, U.S.-crewed, and U.S.-built. This rule would place U.S.-flagged towing vessels at a competitive disadvantage against self-propelled foreign-flagged vessels that are not covered by CARB’s rule. Finally, AIS and Marine Exchange data reveals that these vessels conduct most of their operations far from the California coast, giving them a similar air emission profile in California as the exempted commercial fishing vessels.

CARB should extend the exemption for commercial fishing vessels to oceangoing tugboats and barges to avoid arbitrary and capricious distinctions between similarly situated classes of vessels.”

Response 3118.7: No change was made to the Regulation Order in response to this comment. See Response 3118.4 and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3121.4: “CARB has arbitrarily and capriciously included or exempted classes of vessels. Specifically, the draft CHC rule exempts commercial fishing vessels because of certain operating criteria while not extending similar exemptions to ocean-going tugs and barges that meet the exact same criteria.”

Response 3121.4: No change was made to the Regulation Order in response to this comment. See Responses 3118.4 and 3117.6.

Comment 3121.9: “CARB’s decision to exempt about 1,570 commercial fishing vessels (approximately 40% of the total CHC population) from the rule is arbitrary and capricious. This decision places 100% of the emission reduction burden of the CHC rule on 60% of the vessel population.

CARB’s rationale for excluding these vessels applies to the towing vessels that operate in coastal and international trade. Specifically:

Small profit margins.

Demonstrated lack of feasibility for Tier 4 repowers and retrofits.

Competition with out of State and global markets; and,

Tendency to conduct most of their operations far from the coast.

Ocean-going tugs and barges, either towed on a wire or rigidly connected through an ATB system, are directly analogous in their operation to commercial fishing vessels and share all four bases that led CARB to exempt commercial fishing vessels. AWO submitted information in April of 2020 showing that “repowering with EPA Tier 4 engines could be significant and cost prohibitive for some ship assist and escort tugs.” Similar technical challenges exist for ocean-going tugs, barges, and ATBs. These vessels commonly operate in interstate commerce in competition with self-propelled vessels in out of state and global markets.

Additionally, the tugboats and barges operating in these markets are required by law to be U.S.-flagged, -owned, -crewed, and -built. This rule would place U.S.-flagged towing vessels at a competitive disadvantage against self-propelled foreign-flagged vessels that are not covered by CARB's rule. Finally, AIS and Marine Exchange data reveals that these vessels conduct most of their operations far from the California coast, giving them a similar air emission profile in California as the exempted commercial fishing vessels.

CARB's decision to exempt 40% of CHC based on the exact conditions that apply to other non-exempt vessels is arbitrary and capricious and should be remedied in any final rule."

Response 3121.9: No change was made to the Regulation Order in response to this comment. See Response 3118.4 and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3121.17: "CARB has arbitrarily and capriciously included or exempted classes of vessels. Specifically, the draft CHC rule exempts commercial fishing vessels because of certain operating criteria while not extending similar exemptions ocean-going tugs and barges that meet the exact same criteria. These vessels trade in direct competition with self-propelled cargo and tank ships that are not covered by the CHC rule, putting them at a financial disadvantage"

Response 3121.17: No change was made to the Regulation Order in response to this comment. See Response 3118.4 and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3121.20: "CARB'S ARBITRARY AND CAPRICIOUS EXEMPTION OF SOME VESSELS VERUS OTHERS

AmNav directs you to the comments from AWO, contained in Appendix A. CARB's decision to exempt about 1,570 commercial fishing vessels (approximately 40% of the total CHC population) from the rule is arbitrary and capricious. This decision places 100% of the emission reduction burden of the CHC rule on 60% of the vessel population.

CARB's rationale for excluding these vessels apply to the towing vessels that operate in coastal and international trade. Specifically:

Small profit margins;

Demonstrated lack of feasibility for Tier 4 repowers and retrofits;

Competition with out of State and global markets; and,

Tendency to conduct most of their operations far from the coast.

Ocean-going tugs and barges, either towed on a wire or rigidly connected through an ATB system, are directly analogous in their operation to commercial fishing vessels and share all four bases that led CARB to exempt commercial fishing vessels. AWO members have offered to confidentially share with CARB financial data that demonstrates the small profit margins in the towing industry. AWO submitted information in April of 2020 showing that "repowering with EPA Tier 4 engines could be significant and cost prohibitive for some ship assist and escort tugs." Similar technical challenges exist for ocean-going tugs, barges, and ATBs.

These vessels commonly operate in interstate commerce in competition with self-propelled vessels in out of state and global markets. Additionally, the tugboats and barges operating in these markets are required by law to be U.S.-flagged, -owned, -crewed, and -built. This rule would place U.S.-flagged towing vessels at a competitive disadvantage against self-propelled foreign-flagged vessels that are not covered by CARB's rule. Finally, AIS and Marine Exchange data reveals that these vessels conduct most of their operations far from the California coast, giving them a similar air emission profile in California as the exempted commercial fishing vessels.

CARB's decision to exempt 40% of CHC based on the exact conditions that apply to other non-exempt vessels is arbitrary and capricious and should be addressed prior to formal rulemaking. In our comment letter from last year, found in Appendix B, AmNav offers draft language that could address this issue and separate vessels engaged in "ocean-going voyages" from the burdens on rules designed for 'harbor craft.'"

Response 3121.20: No change was made to the Regulation Order in response to this comment. See Response 3118.4 and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3121.22: "Concept I: Expanding Vessel Categories Subject to In-Use Requirements

We want to be clear that we concur with CARB's reasoning and support the exclusion of the commercial fishing vessels from the proposed regulations. However, we would ask CARB to consider that those same points can be made about other vessel categories that are included in the list of regulated CHC. Under the heading of Justification/Reasoning, CARB sites their reason for not including commercial fishing vessels, as: "the small profit margins in the industry, demonstrated lack of feasibility for Tier 4 repowers and retrofits, competition with out of state and global markets, and tendency to conduct the majority of their operations far from the coast." All these points can be made regarding tank barges over 400 feet and 10,000 gross tons and the tugs that tow them. These vessels operate in stiff competition to both international tankers that are able to move supply to and from foreign ports, US ocean going tankers that are exempted and trucks and rail that while regulated by CARB present a much higher emission profile per ton of cargo moved than their marine counterpart¹. Further their routes are those of ocean-going vessels and not CHC, and we feel they should not be unduly burdened with regulations that don't apply to their competition.

It is our belief that CARB should determine the applicability of the CHC rules based on the service the vessel is performing, rather than generic classification of the vessel. We would propose the following:

- *A vessel engaged in ocean voyage or a barge engaged in ocean voyage shall be exempt from the CHC rules. The following shall be the criteria for defining an ocean voyage exempt from regulation under the CHCRs.*
 - *A tug and loaded barge, whose arrival or departure is transporting a cargo with the destination outside of the load ports line of demarcation and beyond the 24nm control zone.*

- *A lite tug and barge, whose arrival or departure is for the purpose of loading a cargo with a destination outside of the load ports line of demarcation and beyond the 24nm control zone.*
- *Any moves or engine hours within the line of demarcation that is solely for the purpose of preparing for an ocean voyage as defined above.*

So long as the vessels movements comply with the criteria above, they will not be required to comply with the CHCR, nor count any hours against the low-use operational requirements of the regulations.

We believe adopting the service-based criteria above will ensure that barge moves that are clearly ocean voyages are not unduly burdened versus other modes of transportation that serve the same markets. This would also preserve the intent of the CHCRs to ensure that vessels performing services inside of the regulated control area are subject to the regulation”

Response 3121.22: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3117.6 and 3117.3.

Comment 3121.27: **“Concept VI: Requiring Replacement Vessels for Certain Vessel Categories** Tug and Barge owners have in good faith built and designed vessels in compliance with federal, state and local laws and regulations. A jurisdiction should not be able to enact a new set of regulations that prevent an owner from realizing the benefit of their investment. We would ask CARB to consider the following comments:

- As stated in our comments under Concept II we would ask that no vessel be required to modify an engine sooner than 20 years from the date it first went into service. If at that time an owner can prove both that the upgrade is not feasible and that it would present a financial hardship to meet the date an extension would be granted.
- As stated in our comments under Concept II any engine modified to comply with the current regulation be allowed 15 years at a minimum from the date it was modified, before being compelled to comply with the new CHCR. If at that time an owner can prove both that the upgrade is not feasible and that it would present a financial hardship to meet the date, an extension would be granted.”

Response 3121.27: No change was made to the Regulation Order in response to this comment.

See Response 3118.4, Response 3117.6, and Response 3117.3.

See Response 3118.15 regarding CARB’s commitments to reduce emissions.

Comment 3147.2: **“Tug Engine Repower Feasibility and Alternatives**

Sause Bros. owns and operates two types of tugs: ocean-going and harbor/assist tugs. We strongly believe ocean-going vessels should be treated differently than harbor/assist Tugs under the new rules. The Cal Maritime study only examined push tugs and did not consider, examine, or detail how ocean going tugs could feasibly install DPF units. Before CARB subjects ocean-going tugs to new harbor craft rules and implementation guidelines, Cal Maritime and CARB officials need to study and diagram the engine room of an ocean-going

tug. Sause Bros. would be happy to provide an ocean-going tug(s) for CARB and Cal Maritime to study and diagram: Issues outlined below.

1. Push/Assist tugs. Sause Bros. has 4 assist tugs that operate exclusively in SCAQMD's district (Redondo, Cabrillo and Arapaho and Pono). Three of the four Long Beach based assist tugs (Redondo, Cabrillo and Arapaho) could be repowered fairly easily. These three tugs have the engine room space to accommodate Tier 4 engines and DPF's per the Cal Maritime study. Repowering these three tugs is feasible given CARB's proposed timeline. However, the fourth assist tug (Pono) will be highly problematic to repower since it wasn't originally designed to be an assist tug, it is actually an ocean-going tug subject to tonnage requirements with limited engine room space.
2. Ocean-going tugs. Sause Bros. believes ocean-going tugs should be exempt. Ocean-going tugs and barges, spend minimal in California waters spending most of their time far off shore. CARB has arbitrarily chosen to exempt approximately 1,570 commercial fishing vessels based on this same operational characteristic.
3. Tier 4 feasibility study flawed. Sause Bros.' understanding CARB has based the proposed regulations on a Tier 4 feasibility study. Note pp. 95 of the Cal Maritime report stating, "This vessel is used to push a specific barge in inland waters. It is not used for coastal voyages." Sause Bros. ocean going tugs do not operate on inland waters. Push tugs are vastly different than ocean-going tugs. Push tugs have expansive engine rooms while ocean-going tugs are subject to tonnage requirements with extremely limited engine room space. With the exception of Redondo, Cabrillo and Arapaho the rest of our tugs simply do not have the space to accommodate DPF units. Sause Bros. engineers are currently struggling to fit SCR's into new tug designs. Naval architects and Sause Bros. engineers will be able to detail why DPF's are not feasible for installation on ocean-going tugs. Also, it's highly unlikely we could repower any of our ocean going tugs as our engine manufacturer, MTU doesn't currently offer a tier 4 option.

There is a hindrance with crew and supply boat repowers. Sause Bros. operates 3 crew/supply vessels (Ford, Hermosa and Ranger) Under CARB's proposed concept, crew boats will not need to be repowered until 2029. No technology currently exists to repower these boats to Tier 4 + DPF standards."

Response 3147.2: No change was made to the Regulation Order in response to this comment. See Response 3118.4, 3118.7, 3117.6 and 3117.3.

For more detail on feasibility extensions outlined in the Regulation Order, see Response 3158.1 et al.

Comment 3177: "Kirby Offshore Marine operates towing vessels and barges in interstate commerce on the West Coast of the U.S., Hawaii, and Alaska. The California market is served by vessels which must also remain profitable in service outside of California. Kirby supports common-sense initiatives to improve the environment and protect the health of the public. But we believe that, based on the information presented in the AWO's comments, the emission impacts of towing vessels and barges, including ATB's, have been miscalculated and

their effects on public health overstated in the CARB Statement of Reasons for the new rules. Kirby has made significant investments in new vessels that are qualified to work in California markets under the existing CHC rules, and these investments will be negatively impacted by these proposed rules. Certain equipment that meets the current CHC regulations, will be disqualified from operation in California before the useful lifespans of the existing engines are realized. Decisions were made regarding capital investments, based on the current CHC regulation, and now these investments will likely not meet their expected service life due to the arbitrary nature of the proposed rules. The previous regulation very clearly stated that investments to upgrade pre-Tier 1 and Tier 1 engines on in-use vessels or deploy new equipment with Tier 2 and Tier 3 engines would be the only investment needed for the remaining life of these vessels. The fact that CARB has exempted the largest inventory of engines in the State from these regulations (commercial fishing vessels) and shifted the burden of improving overall CHC emissions onto the remaining vessels, is an arbitrary action which undermines the stated purpose of the regulations, and further harms the ability of the maritime industry to serve the people of California. We ask the Air Resources Board to stay the implementation of these new rules until any future actions can be applied fairly and the economic impacts apportioned appropriately among all engine operators in the universe of vessels regulated under the CHC rules.”

Response 3177: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3. Also see responses to Comment 3177-1 in the Response to Comments on the Draft EA. See Response 3118.15 regarding CARB’s commitments to reduce emissions.

Comment 3289: “The proposed regulation fails to address the unique nature of articulated tug barges as recognized by this Board in Resolution 20-22, and in doing so ignores their vital role in providing safe and efficient bulk liquid transportation along the U.S West Coast. ATVs operate in a manner identical to ocean-going vessels and require more flexible alternative compliance pathways than those included in the proposed regulation to meet our shared goal of cost effective and impactful emissions reductions in California’s most sensitive airsheds.

We have communicated with CARB staff, including ATVs and the CHC inventory and potential violation of CEQA may have the unintended commercial consequence of shifting this trade to less environmentally friendly modes. This will likely result in a net increase in emissions for California port communities, the opposite of what this rule aims to achieve. Accordingly, we at Crowley urge CARB to again set our ATVs as distinct from harbor craft and to work with industry to develop and implement broader and more innovative alternative compliance pathways.”

Response 3289: CARB staff assumes based on context that the Board Hearing transcript incorrectly states “ATVs” but that this commenter is discussing “ATBs.” No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3. Also see Master Response 4 and Response to Comment 3117-2 in the Response to Comments on the Draft EA regarding indirect impacts.

Comment 3373.3: “2)Ship assist vessels and Coastal barge transport are crucial to our nation’s supply chain. Barge transport is a key option for alleviating port congestion, traffic

mitigation, and reducing emissions (compared to truck drayage). CARB community emission reduction plan clearly states that on road mobile sources and industrial sources will cause NoX to increase through 2029. Coastal barge transport has the ability to have a greater impact on emission reduction in disadvantaged port communities, in a quicker time frame, than the new CARB CHC engine/aftertreatment regulations will have.”

Response 3373.3: No change was made to the Regulation Order in response to this comment. CARB staff encourages industry to explore commercially viable options for barge transport utilizing tugboats and barges compliant with the Regulation Order. See Master Response 4 and Response to Comment 3117-2 in the Response to Comments on the Draft EA regarding indirect impacts.

Comment 3377.3: *“Arbitrary and Capricious Vessel Exemptions*

CARB’s decision to exempt about 1,570 commercial fishing vessels (approximately 40 percent of the total CHC population) from the rule while not similarly exempting other vessels that meet the same criteria is arbitrary and capricious. This decision unfairly places 100% of the emission reduction burden of the CHC rule on 60 percent of the vessel population. CARB’s rationale for excluding these commercial fishing vessels applies equally to towing vessels that operate in coastal and international trade. Specifically:

- Small profit margins,
- Demonstrated lack of feasibility for Tier 4 repowers and retrofits,
- Competition with out-of-state and global markets; and,
- Tendency to conduct most of their operations far from the coast.

Oceangoing tugs and barges, either towed on a wire or rigidly connected through an articulated tug barge (ATB) system, are directly analogous in their operation to commercial fishing vessels and share all four criteria that led CARB to exempt those vessels. AWO submitted information in April 2020 showing that “repowering with EPA Tier 4 engines could be significant and cost prohibitive for some ship assist and escort tugs.” Similar technical challenges exist for oceangoing tugs, barges, and ATBs. These vessels commonly operate in interstate commerce in competition with self-propelled vessels in out-of-state and global markets. Additionally, the tugboats and barges operating in these markets are required by law to be U.S.-flagged, U.S.- owned, U.S.-crewed, and U.S.-built. This rule would place U.S.-flagged towing vessels at a competitive disadvantage against self-propelled foreign-flagged vessels that are not covered by CARB’s rule. Finally, AIS and Marine Exchange data reveals that these vessels conduct most of their operations far from the California coast, giving them a similar air emission profile in California as the exempted commercial fishing vessels.

CARB should extend the exemption for commercial fishing vessels to oceangoing tugboats and barges to avoid arbitrary and capricious distinctions between similarly situated classes of vessels.”

Response 3377.3: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3117.6 and 3117.3 and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3377.4: *"Inappropriate regulating statute*

The proposed rule fails to address the unique nature of articulated tug and barge (ATB) systems. The operational profile of ATBs is equivalent to that of a self-propelled oceangoing tank vessel in its function. Under CARB's current rules, all self-propelled bulk tank vessels calling at port in California – whether foreign or U.S. flagged – are subject to the At Berth Regulation. It is neither fair nor rational that ATBs face significantly different emissions control requirements, despite performing the same function as other similar vessels. The CARB Board recognized this at their August 27, 2020 meeting by passing Resolution 20-222 which specifically directed staff to engage with industry to determine the best options for cost effective- emissions-reduction regulations.

In the mind of AWO, this means removing ATBs from the CHC rule and regulating them under the existing At Berth Regulation."

Response 3377.4: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3.

Comment 3402.3: "We have made our positions clear with our comment letters. We stand ready to work with CARB, but let's not jeopardize the lives of mariners. Let's pick better path. One that gets to zero emissions in a safe manner, one that allows DPFs a chance to get approved by the Coast Guard with a six-year grace period, one that exempts non-harbor craft like ocean-going tugs and ATBs because of the already in place At Berth Regulation where they are better suited, and let's seize the moment to get outdated technology out of the environment before we leave to require an unproven and dangerous technology."

Response 3402.3: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3 related to ATB comments. See Master Response 1 in the Response to Comments on the Draft EA regarding safety concerns.

Additionally, CARB staff has met numerous times with U.S. Coast Guard officers from District 11 Headquarters in Alameda, CA and the Marine Safety Center (MSC) in Washington D.C. about DPF installations in CHC. USCG does not approve DPFs. USCG will review DPF installation plans and inspect the DPF installations are completed according to the applicable 46 CFR Subchapter design and safety standards. USCG's current position on DPFs is that they are like any other component in the exhaust system such as a muffler, are a critical system component since they are connected to propulsion engine exhaust, and that they can be installed in CHC with any type of hull material but must be installed according to a vessel's applicable 46 CFR Subchapter requirements, and completed installations must not exceed the maximum backpressure specified by the applicable engine OEMs.

Comment 3412: "Art Mead, Crowley Maritime. Overall Crowley has almost no objection to the proposed amendments to the Commercial Harbor Craft Rule. However, there remains one material issue that must be addressed. The proposed language includes a very generalized definition of an articulated tug barge, known as ATBs that includes ocean-going vessels.

Not all ATBs are the same and Crowley operates several ocean-going vessel ATBs engaged in interstate commerce along the United States west coast. These vessels exceed 700 feet in

length and transport in excess of 120,000 barrels of bulk liquid energy. These vessels are not harbor craft and spend only a small portion of their operating hours in regulated California waters.

In fact, our OGV ATBs which do not separate are longer than the U.S. Navy's Ticonderoga class guided missile cruisers, hardly harbor craft. This is not a new issue. With the passage of the At Berth Rule two years ago, Crowley objected to exempting OGV ATBs from that rule. The resolution adopted by the Board at that time directed staff to engage the ATB industry to determine the best options for cost-effective emissions reductions that recognize the unique nature of ATBs during the harbor craft update.

In fact, the proposed harbor craft rule will force Crowley's operations in California to cease by 2024. The capacity reduction of two million barrels will be replaced by less efficient foreign tankers, which are not regulated as harbor craft, traveling across the globe, increasing harmful air emissions with other unintended harmful economic consequences to western states.

Crowley urges the Board to direct staff to develop a pathway to acquire OGV ATBs to comply with shore power requirements. Rather than drive Crowley's American flag OGV ATB fleet out of the state, the CHC Regulation should include more flexible and effective alternative compliance pathways to achieve the emissions reductions mandated. We look forward to continuing discussions with the Board and staff on addressing this important issue."

Response 3412: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3. See Master Responses 2 and 4 in the Response to Comments on the Draft EA regarding economic leakage and indirect impacts, respectively.

Additionally, any CHC that operates under the low use thresholds within RCW would be eligible to apply for a low use exception pursuant to Subsection (e)(14).

Comment 3428.3: "The inclusion of ocean-going articulated tug barges in the harbor craft regulation ignores a prior Board resolution to work with the industry in considering their unique nature. This vessels perform most of their work offshore competing with other vessels that are not covered by the CHC regs."

Response 3428.3: No change was made to the Regulation Order in response to this comment. Staff consulted with industry as described in Response 3117.3. Also see Response 3412.

Comment 3428.5: "Require the articulated tug barges to meet ocean-going vessel At Berth Regulations instead of regulations for harbor craft, which they are not."

Response 3428.5: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3.

I. Dredges

Comment 3170.1: "1) The exclusion of certain commercial fishing vessels from these CHC amendments. This exclusion is based upon factors which are every bit as prevalent for tug and barge operators. If negative financial impacts to industry sectors were being considered during the development of this amendment then surely Subchapter M operators, whose primary functions involve clamshell dredges and barges (assets which will also be impacted), should be considered for exemption as well."

Response 3170.1: No change was made to the Regulation Order in response to this comment. See Responses 3118.4, 3118.7, 3117.6 and 3117.3.

Commercial fishing vessels are not exempted from the Amended CHC Regulation. Commercial fishing vessels will still be subject to reporting, labeling, opacity testing, and the in-use performance standard portions of the regulation with a reduced Tier 2 minimum engine standard. Non-compliant or pre-Tier 2 engines will be required to update to Tier 3 according to the timeline outlined in the Regulation Order.

As part of the rulemaking process CARB staff developed an extensive cost analysis to evaluate the cost effectiveness of the 2022 Amendments. Subchapter M towing vessels are an entirely different and separate operational sector than commercial fishing vessels with different revenue streams. Towing vessels are one of the largest harbor craft emissions source categories and dredging activity in harbors and shipping channels is another significant source category. Subchapter M towing vessels and dredging vessels will not be exempted from the 2022 Amendments.

Comment 3170.5: "5) The new CHC amendments will ultimately impact tug and barge companies engaging in the Civil and Other Heavy Duty Engineering Sector, on two fronts. These Subchapter M operators are frequently contracted to perform necessary work in the marine space on behalf of construction firms and federal agencies. Necessary channel maintenance projects in California are contracted out by the U.S. Army Corps of Engineers. These projects, especially in California, require the use of clamshell dredges which are also subject to the tenets of the new CHC amendments. For tug operators who own and employ dredge assets this pending regulation will proliferate an additional layer of regulatory action taken against their fleets."

Response 3170.5: No change was made to the Regulation Order in response to this comment. This comment is too general for CARB staff to provide additional response.

Comment 3373.2: "1) Overall impact to our industry sector (marine construction) A lot of CA dredge projects require the use of clamshell dredges which are also subject to the tenets of the new CHC amendments. For tug operators who own and employ dredge assets this pending regulation will proliferate an additional layer of regulatory action taken against their fleets. There is a limited number of Subchapter M operators capable of handling the volume and scope of marine construction work along California's coast. Impacts of these CHC Amendments will be reflected through Reduction in the number of marine construction firms able to operate in CA at the necessary capacity. Higher rates and possible delays of vital marine construction projects which must occur so that our ports can handle the traffic of

large container ships. CHC operators will move assets out of California in lieu of retrofitting. If this happens there will be a vacuum of this niche equipment out of state, which will further exacerbate the current supply chain issues.”

Response 3373.2: No change was made to the Regulation Order in response to this comment. See Master Response 2 in the Response to Comments on the Draft EA related to economic leakage.

Comment 3373.4: “3)Marine Construction firms w/ CHC assets should be held to the same ruling as Commercial Fishing Fleet. The exclusion of Commercial Fishing Vessels is based upon factors which are every bit as prevalent for tug and barge operators. If negative financial impacts to industry sectors were being considered during the development of this amendment then surely Subchapter M operators, whose primary functions involve clamshell dredges and barges (assets which will also be impacted), should be considered for exemption as well. Commercial Fishing Vessels currently account for 23% of statewide PM2.5 and will remain one of the largest emitters of PM2.5 through 2035 (15%) as cited by CARB.”

Response 3373.4: No change was made to the Regulation Order in response to this comment. See Response 3170.1.

m. Ferries

Comment 651.8: “In particular this bill could terminate the only public passenger service to the Channel Islands National Park. In 2020, over 167,000 people visited the National Park. Most of these passengers travel via Island Packers privately operated ferry service contracted by the National Park Service.”

Response 651.8: No change was made to the Regulation Order in response to this comment. CARB staff has included provisions in the Regulation Order providing feasibility, technology availability, and scheduling extensions for eligible stakeholders (subject to approval by CARB’s E.O.). There is also a provision for stakeholders to submit an ACE plan application (subject to approval by CARB’s E.O.). Compliance deadline extensions, if approved, can be utilized to extend compliance dates out providing enough time to meet the surplus emissions reductions requirements of incentives and grant funding programs.

Comment 3096: “I am a resident of Catalina Island that has lived here for since 1975. My husband is a third-generation islander and we have raised three children on the island. In the past, we owned a business that was sold in 2011. We both still work and all jobs on the inland (except rock quarry) are tourism related. We are very concerned about your proposed rules requiring ferries to be powered by Tier 4 classified engines. Ferry service is critical for those of us who live here, and these rules could devastate our lives and our livelihoods. The costs associated to comply with the proposed amendment will have a devastating impact on the lives of all residents. Visitors will also be impacted and many will choose to not visit. Businesses will struggle and fail, residents will be forced to move and the island population will shrivel. Workers will not be able to live here and support the current economy. Wealthy homeowners that wish a ‘deserted island’ feeling may stay, but services will be extremely limited as the work force will be gone! I travel the ferry every three weeks taking a friend to chemo. This cost will add to the burden but the treatments are not an option. Living here I

have traveled to the mainland for orthodontic work, health care, surgeries, etc. and all these were not optional. Necessary travel for locals will become too expensive. We also travel for pleasure as do the visitors to our island. We need the visitors to survive! I urge you to reject the new rules or to modify them so they do not have a negative impact on me, my fellow residents, and our island community on Catalina."

Response 3096:

Staff acknowledges that industries that operate CHC would face costs and see net decreases in output growth and employment. To help, there are funding opportunities available to provide financial assistance and there are feasibility compliance extensions in the 2022 Amendments to allow for more time for compliance in cases of feasibility challenges which will help operators where vessel replacement cannot be afforded. Also, passenger carrying vessels, including ferries if subject to vessel replacement to meet emissions performance standards, would be eligible to receive an additional two-year feasibility extension due to potential impacts from the global situation that began in 2020.

Also see Response 2365.2 regarding ticket price increases.

Comment 3125.1: "For over 100 years Balboa Island Ferry has provided service for vehicles, cyclists, and pedestrians between Balboa Island and the Balboa Peninsula in Newport Beach, California. Not only is the ferry a convenient, inexpensive option for those trying to cross the bay, but it is also enjoyed as a source of entertainment, providing individuals a unique vantage point on Newport's beautiful coastal community. The proposed amendments would place an unbearable cost burden on Balboa Island Ferry and would likely result in ending the valuable service we have been providing to the families we have served for over 100 years.

Balboa Island Ferry is in a unique position regarding the proposed amendments as it appears to qualify as a "short-run ferry" service. The proposed amendments place extreme restrictions on all commercial harbor craft, well beyond existing U.S. EPA engine standards, as Mr. Roger Carlson, 1 Chair of the Harbor Commission of the City of Redondo Beach, notes in his comment letter. However, the proposed amendments call for even more stringent emissions standards for short run ferry services, requiring all new, newly acquired, and in-use short-run ferries to be zero emission vehicles ("ZEVs") by December 31, 2025. Based on our review of the ZEV requirements, compliance with the proposed amendments would result in the need to have battery powered electric propulsion in each of Balboa Island Ferry's vessels, which would result in an extremely high cost to Balboa Island Ferry."

Response 3125.1: No change was made to the Regulation Order in Response to this comment. See response to Comment 3315 and Response to Comment 3125-1 in the Response to Comments on the Draft EA.

Comment 3125.5: "There are clear and considerable errors in CARB's analysis, including a lack of consideration regarding certain aspects of short-run ferry operations, rendering its conclusions and plan insufficient. Thus, we object to the proposed amendments and request that CARB reconsider the amendments and/or eliminate the amended provisions requiring short-run ferries to achieve zero emissions by 2025. CARB should take the time to conduct a more careful analysis of the environmental impact and the impact the proposed amendments

would have on Balboa Island Ferry and other similarly situated commercial harbor craft companies. In this or any future consideration of the proposed amendments, CARB should re-evaluate the compliance deadlines and extend any such deadlines to allow short-run ferries throughout the state the opportunity to enroll in grant programs and/or implement feasible plans to manage costs. If it does not, the approval of the proposed amendments will be detrimental to Balboa Island Ferry and other short-run ferries throughout the state. Family-owned businesses that have served local communities for decades will be forced to close because of the incredibly burdensome requirements based on flawed analyses.

Please do not move forward with the proposed amendments, or at least remove from the proposed amendments the provisions adding burdens to the short-run ferries. The impacts have not been fully considered and you do not have the appropriate and correct information to properly assess the benefits or impacts. On behalf of the thousands of people who enjoy our ferry services and the numerous businesses on both sides of our bay that benefit from the ferry, please do not impose these requirements that as currently contemplated would put us out of business without any corresponding benefit to the environment."

Response 3125.5: No change was made to the Regulation Order in Response to this comment. See Response to Comment 3315. See Response to Comment 3125-4 in the Response to Comments on the Draft EA.

Comment 3165.2: "CCE plays a vital role in the economic survival of Catalina Islanders. As you know, CCE is a private operator of these ferries, and we are licensed by the CPUC. We call to your attention the 2006 report on ferry transport by the Los Angeles County Metropolitan Transportation Authority (MTA). That report called our ferries a "lifeline service," noting that, "Sixty-two percent of all respondents and forty-six percent of islanders indicated that they could no longer live/work on the island if the [ferry] service were not available. In addition, ninety-three percent of those indicating that they use the service for work stated that they felt the service was an irreplaceable lifeline, providing the only affordable, regularly scheduled mode of travel between the island and mainland harbors." Since that report was issued, transportation options have not changed. About 70% of the visitors to Catalina arrive and depart via cross channel ferries. Alternatives to ferry transport, such as helicopters or private charters, are neither practical nor economically feasible for residents, especially workers who commute daily from the mainland to the island to assist in the Island's only meaningful industry - tourism. If ferry service is substantially disrupted, it will cause great harm. The same MTA report shows that fifty four percent of islanders travel by ferry for medical or dental appointments or to conduct personal business, and twenty-six percent of islanders travel for school or work. Our ferries also transport first responders, firefighters and other emergency personnel to the island and provide a reliable means of evacuation of the Island in the event of a significant emergency as occurred during the devastating fires of 2007. The fire threat continues and just last week a fire broke out on the Island but was quickly contained by Los Angeles County Fire."

Response 3165.2: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al., Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Comment 3297: "The City of Avalon is in LA County located on Catalina Island, 26 miles off of Southern California. The city relies on connections to the mainland for routine, advanced, specialty, and life-saving medical, dental, and vision care. Additionally, the city and island has a vibrant tourist and recreation-based economy. However, this economy is dependent on visitors access to the island. To access the island, the city and island rely on the island's only means of transportation, the cross-channel ferry services provided by the Catalina Channel Express.

If as proposed, the amendments to the commercial harbor craft regulations are adopted by CARB, they will disproportionately impact our community's quality of life, threatening many of our residents' ability to access life-saving medical care from mainland hospitals and have dire consequences for our economic viability. The city urges CARB to embrace a solution that will allow for ferry services to continue to operate their existing fleet while expediting the development of a zero-emission ferry."

Response 3297: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Comment 3315: "Please do not move forward with the proposed amendments to the Commercial Harbor Craft Regulation, or at least remove from the proposed amendments the provisions adding crippling burdens to short-run ferries. The proposed amendments and materials relied upon to support them fail to address a number of key issues with the costs, impact, and a lack of meaningful benefits of requiring all short-run ferries to be zero emissions by December 31st, 2025.

For over a hundred years, Balboa Island Ferry has provided service for vehicles, cyclists, and pedestrians at Newport Beach, California. In providing this service, Balboa Island Ferry operates three small short-run ferries that each use about a half gallon of fuel per hour. On the busiest day, running all three ferries, this fuel consumption is about the same as a single drive from San Diego to San Francisco. And without this option, most of people would have to drive approximately six miles, from one point to another, potentially using more fuel than the ferries consume.

The materials provided by CARB simply do not address the fact that any decrease in emissions associated with electrification would be negligible for short-run ferry vessels, like the ones Balboa Island Ferry operates.

So while Balboa Island Ferry supports CARB's effort to improve State air quality, it does not agree that imposing burdensome requirements on small business that generates negligible emissions is the proper way to do so.

Perhaps most strikingly, the costs in the proposed amendments are prohibitive and we believe understated. Adding to this burden is a short implementation timeline which renders Balboa Island Ferry effectively ineligible for grant funding. CARB's analysis in support of the

proposed amendments is flawed, and family-owned businesses that have served local communities for decades should not be forced to close because of it.”

Response 3315: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Staff documented the inputs used to calculate cost estimates, including short run ferry, for the 2022 Amendments in Appendix A: Cost Analysis Inputs and Assumptions for the SRIA. Staff documented the CHC emissions inventory methodology and results in Appendix H of the ISOR.

In alignment with Governor Newsom’s Executive Order N-79-20, CARB staff has identified 16 short run ferries operating throughout the State that are currently feasible for electrification and zero-emission operation. CARB staff has included provisions in the Regulation Order providing feasibility, technology availability, and scheduling extensions for eligible stakeholders (subject to approval by CARB’s E.O.). Compliance deadline extensions, if approved, can be utilized to extend compliance dates out providing enough time to meet the surplus emissions reductions requirements of incentives and grant funding programs.

See Response to Comment 3125-1 in the Response to Comments on the Draft EA regarding the concern that individuals will choose to drive rather than take the ferry.

Comment 3316: “As many of my counterparts have already said this evening, the impacts of the proposed regulations would be catastrophic for Catalina Island's tourism-based economy, it's 4,000 residents, and over 60,000 youth campers who enjoy visiting the island each year.

The -- I'm expressing concerns, beyond what they've said with regard to the unattainable recovery of costs, associated with either modification, should that be feasible, or replacement, when the boat costs are estimated at upwards of \$20 million each, and we are dependent on a fleet of at least eight boats to support the current economy on the island.

The -- sorry, I lost my note. To put upon Catalina businesses this excessive financial burden would put every business, every resident, and every visitor to the island at risk of having to cease enjoying Catalina as a place to live, to work or to recreate. I encourage you to look at alternative means of reaching these goals, which we do support.”

Response 3316: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al., Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Comment 3323: “Cinde MacGugan-Cassidy, Mayor Pro Tem for the City of Avalon on Catalina Island as well as President of the Gateway Cities Council of Governments. I'm a multiple business owner in our community, which 100 percent relies on the tourism of the island for our sustainability in business.

The current proposed regulations will harm California's families. Catalina is a vacation destination for families that cannot afford expensive flights. Our visitors are mostly middle

income Californians with a growing percentage of Latino families. Catalina is an ideal vacation spot for more than one million visitors a year that near exclusively use ferries to travel to and from the island.

If commercial ferries are required to replace existing engines, it will either result in a massive reduction service or a substantial price increase for residents and families, neither of which result would be beneficial to Catalina or California. There is no affordable alternative to the ferry service. Without some relief from the regulations, Catalina and the businesses that serve the island will be irreparably harmed. An increase in ferry fees or decrease in available travel spots will undoubtedly severely affect the ability for Catalina to remain sustainable as a tourist-based economy.

There are no other methods of revenue for our island outside of tourism. I urge you to embrace a solution that will allow our ferry operators to continue to operate their existing fleet while expediting the development of zero-emission ferry.”

Response 3323: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al., Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Comment 3381.3: “In addition to the public ferry system, private ferry operators will also need to pursue alternative plans to meet these greenhouse gas reduction targets in a financially feasible manner. Private ferry operators on San Francisco Bay have also worked with CARB staff to identify alternative control technology that could help those operators meet the requirements in a financially feasible way since they are not eligible for public grant opportunities. We urge you to approve these alternative control technologies quickly to ensure that these operators remain in compliance and in business.”

Response 3381.3: No change was made to the Regulation Order in response to this comment. Charter ferry operators are common carrier operators with routes and fares regulated by the CPUC. As CHC, they are subject to the CHC Regulation including the 2022 Amendments and are eligible to apply for incentive funding.

Comment 3388: “On behalf of more than 1,000 petition signatories (names attached at the end of this letter) who reside, work and travel to and from Catalina Island, this letter registers deep concerns over CARB’s current proposed harbor craft rules.

The past few years have created hardships for many localities, especially those made up of small businesses and tourism, CARB’s proposed regulations could negatively impact the ability of Catalina Channel Express (CCE) and other passenger ferry services to continue operations; the vital ferry transportation systems that transport passengers to and from the Island. CARB’s proposed rules will require CCE and other passenger ferries to make costly changes to the engines on their vessels that are not feasible or purchase replacement vessels to achieve reduced emissions, costing CCE upwards of \$120 million. Without state funding to make this transition feasible, the current proposed regulations place an impossible financial burden on CCE that is a privately regulated utility regulated by the CPUC. The negative consequences of these new regulations, without sufficient funding for the transition to new

vessels equipped with Tier IV engines, will negatively impact transportation efficiency, reliability, and affordability.

These rules will not only impact CCE and other passenger ferries, but could significantly harm Catalina Island tourism and economic livelihood. By providing adequate funding to help implement this transition, the state can achieve its long-range emissions goals while maintaining the vital ferry transportation system that serves the people of Catalina and the workers and visitors that travel to the Island.

STATE FUNDING IS CRITICAL

State funding is needed to help private operators comply with the new regulatory mandates being proposed. While CCE is committed to a longer-term goal of eventually transitioning to zero-emission vessels, privately-owned companies need time and adequate funding to achieve this goal.

The cost to repower an existing vessel is \$7 million but will displace approximately 50% of the passenger capacity. The cost to build a new vessel is approximately \$20 million. Compliance with Tier IV mandated changes would cost upwards of \$120 million to replicate the same level of service with a fleet of new vessels.

Without dedicated state funding provided for this massive new expenditure, these proposed regulations are far too cost prohibitive for a privately owned company. Without increased and dedicated Carl Moyer funding or dedicated funding in other CARB programs aimed at the new vessel purchases, these mandates are simply not feasible because they are cost prohibitive for a private company to finance.

LOSS OF RELIABLE AND AFFORDABLE FERRY SERVICE

Without sufficient funding provided by the state to make this transition, these prohibitive costs would not only impact CC and the loss of reliable and affordable ferry service but would significantly harm Catalina Island tourism and the economy. There are no other viable options for passengers in large numbers to reach the Island other than by ferry, so these costly and economically harmful mandates to replace or upgrade ferries witho sufficient financial assistance to the operators will cause an unavoidable ripple effect on every business and resident on the Island.

In times like these, we should be attracting visitors and supporting local economies, not discouraging tourism, and fiscally harming small communities.

On behalf of more than 1,000 petition signatories, we strongly urge CARB to prioritize funding for ferries like CCE for the Clean Transportation Incentives program with sufficient funding to begin to replace CCE's fleet.

Thank you for the opportunity to comment and for the thoughtful consideration o the economic impacts these regulations will have on CCE, other passenger ferries, and Catalina Island.

Comments registered by petition signatories:

'The economy on the island requires safe, regular and reliable ferry service daily at a reasonable charge. The proposed carrier requirements are too burdensome, expensive to implement, and will hurt island residents, visitors and businesses.'

'I travel to Catalina often for leisure and business. This would cause economic hardship on the people, business, and community of Catalina. Catalina Express is the lifeline to the island.'

'I am signing as a property owner on Catalina Island, Avalon. Residents have no other option for traveling from the island to mainland Southern California. There are no roads or bridges.'

'Convenient and affordable transportation is vital to the wellbeing of the town of Avalon!'

'We own property in Avalon and spend 3-4 months a year there, taking 5-6 round trips a year on the Express. Full-time residents have an even greater need for affordable transportation across the channel. Please provide state funding sufficient to make this feasible for this special island.'

'We are homeowners in Avalon and travel back and forth to the mainland frequently. Catalina Express has always provided safe, affordable, and reliable ferry transportation for our family. If CARB is requiring expensive changes to the passenger ships, they should have included financial assistance.'

[List of petition signatures attached to comment]

Response 3388: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al., Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5.

Comments asking for State funding are outside of the scope of the rulemaking. The comments regarding economic hardship are too general for CARB staff to provide a response, however, impacts to ferry ticket prices, calculated as a statewide average, are provided in the Costs to Individuals analysis in the SRIA and Chapter IX of the Staff Report (as corrected by the October 1, 2021 Errata).

The 2019 CSU Maritime Academy Tier 4 Feasibility Study outlined in Appendix E of the ISOR to the Regulation Order showed feasibility in the high-speed ferry category for Tier 4 repower, SCR + DPF retrofit, and DPF retrofit with substantial vessel reconfiguration. See pages E-43 and E-44 in Appendix E. However, as of June 9, 2022, CARB staff has not received any engineering analysis or feasibility studies that are based on in-use vessels operating in the Catalina Channel Express (CCE) fleet that support claims that no emissions reductions can be attained from these vessels through repowering or retrofitting exhaust aftertreatment with currently available technologies. CARB staff has not received any CCE compliance plans detailing potential fleet compliance timelines, vessel ages, and vessel useful life remaining that would detail economic viability and fleet feasibility for various

compliance scenarios including repowers and retrofits or a schedule for required new-build replacement vessels expected to replace aging in-use vessels.

Comment 3390: Please change the definition of a short-run ferry in the proposed harborcraft regulations so that a boat that operates with a diesel engine cannot add multiple legs or add one long leg in order to avoid the requirements that a short-run ferry be zero emission. As written, the regulations will cause boat operators to game the regulations by running more and longer routes and this will increase CO2 emissions by thousands of tons in the Bay Area and this is wrong. Zero-emission regulations should reduce CO2 emissions not increase them. Please make it that everyone running a vessel on a short-run route has to follow the same regulations and be zero-emission without loopholes. That's only fair and also will ensure the proposed regulations reduce CO2 emissions created by ferries in the San Francisco Bay.

Response 3390: CARB staff made a 15-day change to clarify the definition of Short-Run Ferry in response to this and similar comments.

Comment 3419: "Good morning. I'm the President and CEO of Love Catalina Island, Catalina Island's tourism authority, which encompasses the local chamber of commerce, visitors bureau, and film office. I'm also a life-long asthmatic, so I see all sides of the issue at hand.

Love Catalina has over 250 businesses as members working and residing on Catalina Island that are a hundred percent dependent on visitors at tourism drives our local economy. Those businesses and visitors need reliable and affordable daily transportation to and from Catalina Island. In a typical year, Catalina Island welcomes about one million visitors, the majority of which traveled via passenger ferry.

On behalf of Love Catalina and more than 1,000 petition signatories, who reside, work, and travel to and from Catalina Island, all of which have been submitted -- sorry, lost my place there -- all of which have been submitted as written testimony will remain deeply concerned over CARB's proposed Harbor Craft Rules. The lack of certainty of dedicated funding for commercial ferries like Catalina Channel Express, and other passenger ferries, to comply with the new regulatory mandates being proposed is very troubling.

Without a new dedicated funding stream, Catalina Express and other passenger ferries will not be able to reach compliance and it's difficult to see how this regulatory program will succeed without ferries like Catalina Express as part of the solution.

Without State funding to make this transition feasible, the current proposed regulations place an impossible financial burden on Catalina Express and the other ferry services as privately operated utilities regulated by the CPUC. The negative consequences of these new, swift, and costly regulations, without sufficient funding for the transition to new vessels equipped with Tier 4 engines, will negatively impact transportation, safety efficiency, reliability and affordability."

Response 3419: CARB staff made no changes to the Regulation Order based on the received comments. See Response 1094.3 et al., Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, Response 3119.5, and Response 3165.5. Comments asking for state funding are outside of the scope of the rulemaking. The comments regarding impacts to transportation, safety, efficiency, reliability, and affordability are too general for CARB staff to provide a response.

Comment 3426: "Hi. My name is Graham Balch with Green Yachts.

CARB Board members and especially Davina Hurt, who represents the San Francisco Bay Area, I am speaking about ensuring that short-run ferries are zero-emission without exceptions, an issue we were unaware of before the November 19th Board meeting and thus unable to comment on until now.

I've spoken to CARB staff and they have said that the direction for addressing this issue must come from you the Board members to be changed. We are proud that California's the first state in the nation to require some vessels to be zero-emission through these proposed CHC regulations.

However, as written, the short-run ferry definition in these regulations allows diesel boats to game the regulations by adding legs or adding one long leg, and by doing so operate a diesel boat on a short-run route for which vessels are required to be zero-emission. This loophole will cause over 2,000 tons of increased CO2 emissions in the San Francisco Bay every year.

Board members, please direct CARB staff to include language in the 15-day change that close the loophole in the short-run ferry definition that currently allows diesel boats to operate diesel boats -- sorry -- on zero-emission short-run ferry routes. We have submitted a detailed written comment, but the direction has to come from you."

Response 3426: CARB staff made a 15-day change to clarify the definition of Short-Run Ferry in response to this and similar comments.

Comment 3447: "Good morning. I'm Josh Gaylord with Flagship Cruises here in San Diego. We operate a harbor tours, whale watching, and ferries on the bay serving as an affordable access point to our bay for the community.

As Californians are experiencing higher gas prices through the nation, we need to keep alternative and less polluting per capita transportation methods affordable.

The Governor has announced providing free public transportation for three months to help commuter ferries -- or -- are an important component of the public transportation system and critical to reducing the traffic, and congestion, and emissions from our roadways.

These are roadways that transect our most vulnerable communities and are demonstrated by the greatest pollution burden on these communities. We are more than willing to continue to invest in lowering emissions for our ferries, but the technology must be available. It must

include State funding to maintain the affordability that will incentivize consumers to abandon their cars. And most importantly, we need to be -- we need a reasonable time frame to work with shipyards and technology providers to construct and deploy new systems as they become available.

We carry about 800,000 passengers a year that would normally drive the six miles through the community we are trying to protect. We feel that this isn't really considered in the carbon impact. We have up --repowered to Tier 3 and reduced speed to minimize our impact on the environment. Tier 3 has also removed us from some of the grant opportunity, which kind of works backwards on the whole thing we're trying to achieve here with lower emissions.

We've engaged an engineering firm to look at the zero emissions opportunities. And so far, it's not feasible for us to maintain our service and feasibility as an affordable alternative to driving across the bridge and driving through these communities.”

Response 3447: No change was made to the Regulation Order in response to this comment. See response to Comment 3315 regarding the requirements for short-run ferries.

n. Pilot Boats

Comment 2617.5: “Pilot Boats Require Implementation Flexibility

Pilot boats are a unique vessel category and are necessary for pilots to safely navigate large ships to and from port terminals in both ocean and harbor marine conditions. With only 10 pilot boats operating in the state that are tasked with this essential duty, the Amendments would place an undue burden on these vessels that make up a miniscule fraction of commercial harbor craft operating in the state and de minimus contribution to CARB’s emission inventory. Marine safety is paramount and pilot boats are compulsory, as such, CARB must provide implementation flexibility in emission performance standards schedules for these unique vessels. The small pilot boat fleet can’t all be replaced simultaneously; based on model year of the fleet’s engines and proposed implementation deadlines, the fleet would largely need to be replaced or retrofitted within an approximate two to three-year timespan. Retrofits, likely not even possible based on current technology, physical space and weight constraints, take time to complete and would require multiple pilot vessels being out of service during the same period. It is more likely that total replacement of California’s pilot boat fleet would be required, at considerable cost and uncertainty if the new builds could all be manufactured and commissioned in time to be compliant, and ready for their essential pilot service. Pilot vessels are needed at the ready; flexibility must be built into implementation timelines for pilot boats such that no more than one vessel would be taken out of service at any time in each homeport.”

Response 2617.5: CARB staff made no changes to the Regulation Order based on the received comment. Although only 10 pilot boats operate in the State, the annual operating hours, high average main engine load factors, and frequent operation of pilot run-boats within port and terminal facilities close to DACs that are disproportionately impacted by emissions from freight related activity, pilot boat emissions are not de minimus or insignificant in the overall CHC emissions inventory.

The Regulation Order contains a number of renewable compliance deadline extensions outlined in Subsection (e)(12)(E) Compliance Extensions for eligible stakeholders. These extensions require a formal application process, are subject to review and approval by CARB's E.O., and are intended to provide compliance deadline flexibility if additional time is needed due to shore power and ZEAT infrastructure delays (E1), engine and exhaust aftertreatment technology availability (E2), technology feasibility and financial hardship (E3), a DPF compliance extension for vessels with Tier 4 engines operating under 2600 hours per year (1300 hours if operating in a DAC) (E4), and scheduling for fleet repowering and/or shipyard availability (E5). There is also a provision for an ACE plan (subject to approval by CARB's E.O.) providing compliance flexibility for eligible fleet operators.

Comment 3119.1: "There are only 10 pilot vessels that operate in California, their contribution to the emissions inventory is de minimus and they are unique in their construction and service applications. Strong positive incentives are already in place to transition replacement vessels to green technologies and we remain perplexed by the decision to regulate this small and specialized fleet; especially when the much larger commercial fishing fleet is exempt. It is our primary position that pilot vessels should be exempt from the proposed regulations or, if subject to the proposed regulation, existing vessels should be exempt for their remaining service life with new construction being subject to the proposed regulation."

Response 3119.1: CARB staff made no changes to the Regulation Order based on the received comment. See response to Comment 2617.5.

Comment 3293: "Our primary position is that pilot boats be exempt from these proposed regs and continue to comply with existing U.S. EPA emissions regulations. Pilot boats have a minimum impact on the emissions inventory.

Regarding the proposed new regs, we believe that they are unnecessarily complex and restrictive. It's very difficult and even impossible on some pilot boats to retrofit with CARB-compliant engines. These regulations will prematurely end the service life of our current pilot boats and accelerate our new build program requiring construction of three new vessels by the year end of 2024, one in '25 and one in '28. These will cost between seven and 14 million dollars each. The implementation timetables are unrealistic and create an unreasonable near-term financial burden."

Response 3293: CARB staff made no changes to the Regulation Order based on the received comment. See response to Comment 2617.5.

CARB staff described the rationale for the compliance schedule in Chapter IV of the ISOR: "The compliance schedule considers the population inventory of engines based on age to achieve approximately a constant number of engines repowered in a given calendar year over the nine-year period. Vessel categories with highest per-vessel emissions were targeted earlier in the compliance tables."

The anticipated cost of the 2022 Amendments and the detailed methodology used to calculate costs are disclosed in the SRIA and the Staff Report. A more detailed breakdown by

vessel category, including Pilot boats, can be found in the SRIA (Table C-27 displays the amortized costs and the average vessel number per business within each vessel category while Table C-28 displays the non-amortized costs).

Appendix E of the ISOR, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, on page E-43 describes the findings of the 2019 CSU Maritime Academy Tier 4 Feasibility Study indicating the pilot vessel evaluated showed fitment for Tier 4 repower, DPF+SCR retrofit, or DPF retrofit with substantial reconfiguration. CARB staff acknowledges feasibility must be evaluated on a case-by-case basis. If compliance is not possible using available technology options by the compliance deadlines outlined in the Regulation Order, CARB staff has included numerous provisions enabling eligible stakeholders to apply for compliance deadline extensions detailed in Response 3158.1 et al. CARB staff has also included provisions for Alternative Control of Emission, and ZEAT Credits allowing fleet operators more flexibility with compliance timelines.

CARB staff acknowledges that if repowering or retrofitting for compliance with applicable in-use performance standards outlined in the Regulation Order is not feasible by compliance deadlines or expiration of an approved extension, then new-build vessels that meet the performance standards would be the remaining option to continue operating above low use thresholds in RCW.

Comment 3381.4: “Lastly, the San Francisco Bay Pilots have a very unique fleet of pilot boats designed to navigate commercial ships to and from ports in the San Francisco Bay Area, Sacramento, and Stockton. The cost of replacing this small and specialized fleet would be over \$50 million, costs that would have to be passed onto their shipper clients and would risk further disrupting supply chain operations in the Bay Area. We respectfully request that their small existing fleet could be exempted from these requirements and new construction would be subject to the proposed regulations.”

Response 3381.4: CARB staff made no changes to the Regulation Order based on the received comment. The comment that supply chain would be disrupted does not provide enough detail for CARB staff to provide a response.

Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The sources of cost estimations included stakeholder inputs, the CMA study, and CARB survey. This represents the best available data when considering the cost effects of the Proposed Amendments A more detailed breakdown by vessel category, including Pilot boats, can be found in the SRIA (Table C-27 displays the amortized costs and the average vessel number per business within each vessel category while Table C-28 displays the non-amortized costs). The expected costs are significantly lower than the reported cost here.

CARB staff disagrees that replacement of the majority of covered in-use CHCs would be required due to the multiple options for compliance extensions, ZEAT credits and ACE plans (see Response 3158.1 et al.).

Please also see Response to Comment 332-1 in the Response to Comments on the Draft EA, and Comments in section IV.C.1.c. for testimonials from manufacturers on engine availability.

See response to Comment 2617.5.

Comment 3407: "Good morning. My name is David McCloy. I'm with the San Francisco Bar Pilots. Thanks for the opportunity to speak. My company owns and operates 5 of the 10 pilot vessels in California.

We support the efforts of CARB to improve air quality in California. The Bar Pilots, along with our ratepayers, are currently building the first Tier 4 powered high-speed pilot vessel in the U.S. It will replace our current Tier 2 vessel. Delivered in November of this year, it will be ahead of the proposed compliance date for that vessel.

The current regs now require emissions compliance upon new construction of vessels or repowers, along --similar to EPA U.S. EPA requirements. The new proposed regulations will require the Bar Pilots to prematurely replace our fleet by the end of 2025. That's only three and a half years from now, at the cost of approximately \$50 million to us and our industry ratepayers.

The design and engineering requirements timeline, along with the financial impact on such a short timeline will create an unreasonable burden on the piloted infrastructure. We embrace the concept and efforts to improve air quality in our area and the State as well, but we just need more time to renew our fleet and comply with the regs. So our request is to have additional time for our vessels to meet the requirements. The current proposed regs don't allow much extensions for our particular fleet."

Response 3407: CARB staff made no changes to the Regulation Order based on the received comment. See Response 2617.5 and Response 2602.2.

o. Environmental Impact/ Environmental Analysis (EA)

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Summary of Comment 4 et al.: Commenters indicated that many sportfishing operators voluntarily upgrade engines over time, have low hours of operation, and decrease the amount of private boat owners burning fuel. Other comments expressed concerns over noncompliant boats being sold to other states and negating emissions reductions, as well as concerns over proper disposal of lithium-ion batteries. Many comments indicated that the emissions from one category or another are negligible and eliminating those emissions will not have an impact on global warming or California air quality, relative to impacts from other sources. Many comments indicated that CARB should target other emissions sources or societal problems instead of harbor craft, including but not limited to:

- Foreign ships, ocean-going vessels, cargo ships anchored outside of LA/LB
- Yachts, freightliners, cruise ships
- Military, USCG, Navy, Harbor Patrol, Air Force, Blue Angels
- Commercial airplanes, private jets, rockets, cars, tankers, trucks, rail
- Long liners and large commercial fishing conglomerates
- Land-based factories/ industrial emissions from consumer products
- Offshore drilling and the oil/fossil fuel industry
- Agricultural industry and cattle ranches
- Heavy construction equipment such as bulldozers and backhoes
- Lawn mowers and bower trimmers
- California wildfires and oil spills
- Smog exempt vehicles, idling cars in drive-throughs or at schools
- Homeless population in California
- Emissions in other countries such as India, Brazil, Mexico, and China

Response 4 et al.: CARB staff made no changes to the Regulation Order based on the received comments.

While CARB staff recognizes the emissions sources and societal problems these commenters suggested CARB should focus on instead of CHC may contribute to the air quality in California, they are outside the scope of this rulemaking. However, Chapter I of the Staff Report discusses CARB's activities related to OGV and recreational vessels.

In response to AB 617 (Garcia, Chapter 136, Statutes of 2017), CARB created the Community Air Protection Program (CAPP) to address the environmental and health inequities from air pollution experienced by certain DACs in the State. The CAPP Blueprint contains a list of

statewide actions that should be undertaken to achieve reductions in these disproportionately burdened communities. Many CHC operate in or adjacent to DACs, and emission reductions from these vessels will directly benefit these communities experiencing cumulative exposure burden.

Additionally, Governor Newsom's Executive Order N-79-20 directed CARB and other State agencies to transition off-road vehicles and equipment to 100 percent zero-emission by 2035 where feasible. To address this, staff proposed provisions to accelerate deployment of ZEAT, which includes requiring all short-run ferries to switch to zero-emissions propulsion and auxiliary power systems, and for new excursion vessels to be equipped with zero-emission capable hybrid systems. There are other use cases of CHC operations that can be transitioned to zero-emission over the coming decade. Therefore, in response to Executive Order N-79-20, CARB staff has designed the 2022 Amendments to create compliance flexibility for introducing zero-emission technology into the marine market.

The 2022 Amendments will assist California to achieve its National Ambient Air Quality Standards (NAAQS) set by the U.S. EPA. Most of the emission reductions expected from the adoption of the 2022 Amendments will occur in areas with significant challenges with air quality, and reductions will assist the State to attain the NAAQS.

While achieving emission reductions through cleaner combustion and zero-emission technologies, the 2022 Amendments are expected to provide significant health benefits, avoid premature death and mortality, and protect workers and on-vessel passengers from exposure to diesel and other combustion-generated air pollutants.

See Master Responses 2 and 4 in the Response to Comments on the Draft EA regarding selling harbor craft out of State and air emissions impacts. See CARB's response to comment number 892-1 in the Response to Comments on the Draft EA regarding lithium-ion battery disposal.

Comment 1669: "To suggest that today's 415ppm CO₂ level is somehow dangerous when all animal life including our mammalian ancestors, lived through millions of years when CO₂ levels were at 2000 ppm and higher, is ridiculous. CO₂ levels in our atmosphere are still at one of the lowest levels it has ever sunk to during the past 510 million years. Humanity's burning of fossil fuels has inadvertently caused the decline in CO₂ to come to an end and has the promise to bringing CO₂ back to historical levels that are more beneficial to nearly all plants and therefore all life."

Response 1669: CARB staff made no changes to the Regulation Order based on the received comments.

This comment is discussing atmospheric carbon dioxide (CO₂) levels. It does not directly address the rulemaking and does not require a response. However, CARB staff would like to point out that in addition to GHG, emissions from CHC include criteria pollutants (such as PM_{2.5} and NO_x) and TACs such as DPM. Diesel engines on CHC emit a complex mixture of air pollutants that pose serious health concerns to nearby communities.

For more information on air pollution from CHC and the need for emissions reductions, see Chapter I-D and Chapter II of the Staff Report.

Comment 1685.3: “Unless California buys them out of service, these vessels will move or be sold somewhere else – East Coast or Mexico. Global Emissions will be the same or worse. And the only difference (as has happened a lot) will be the loss of jobs here in California. Worse, “commercial” Sportfishing will switch more and more to the unregulated “recreational” vessels that already operate many illegal charters throughout the State, making that problem worse and undoubtedly adding immense amounts of air pollution. I am sure the State at some point will try to reign them in, but if past is prolog, they will not do well.”

Response 1685.3: See Response to Comment 1685-1 and Master Responses 2 and 4 in the Response to Comments on the Draft Environmental Analysis.

The commenter has not provided any evidence to back up the claim that sportfishing would switch to recreational vessels and increase illegal charters. However, in response to economic concerns from the sportfishing industry and at the direction of the Board, CARB staff made a 15-day change to allow a one-time, ten-year extension for CPFV that have Tier 3 engines by 2024. See Response 1.7 et al.

Comment 2594.10: “I can show you engine data from the happy hooker C18 computer that shows that 67% of our engines lifetime is idle time. Just drifting barely putting anything in the air. This is the same for a lot of charter boats in my area. Its not right to target us. I want to meet CARB in the middle somewhere.”

Response 2594.10: CARB staff used engine load factors to account for engine idling time in the calculation of emissions reductions. Engine load factor is the portion of maximum engine power used on average by the engine while it is operating. For Commercial Passenger Fishing, CARB staff calculated the average load factor of 0.29 for the main engines, based the fuel and activity data from CARB Reporting data (see Appendix H of ISOR). This load factor accounted for the extended idling time of the engines, as described by the commenter here.

Please also see Response 1.7 et al. regarding the 15-day change for CPFV. Please also see Master Response 3 and Response Workshop 30-1 in the Response to Comments to the Draft Environmental Analysis.

Comment 3026.2: “In a broader sense the proposed regulations are not “practicable” at this time. Implementing them would simply reduce both safety at sea and further curtail our ability to sustain peoples' quality of life through a cascade of unintended consequences.

An example of this is what we are currently seeing in the backlog of freight traffic offshore today, ships both pumping out pollutants while standing by and raising the cost of goods. This is the result of Prop 5 and the reduced number of truck drivers and CARB regulations which reduced the number of California Compliant tractor vehicles.

Reducing the number of qualified tugs, pilot boats, crew boats and ferries is likely to further exacerbate problems. The governor's mandate and timeline is naive. CARB needs to speak truth to power in this.”

Response 3026.2: See Response 1.7 et al. regarding 15-day changes, Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments, and Response 4 et al. regarding environmental impacts. Also see Master Response 1 in the Response to Comments on the Draft EA regarding safety and feasibility.

Comment 3152: “According to the CARB fact sheet, there are 2 towing vessels on the North Coast; there are 6 commercial sportfishing vessels on the North Coast. Air Quality is in Attainment in the Eureka area (Humboldt Bay). There is no apparent reason to require private owners to make major investments for 6 commercial sportfishing vessels and 2 tugboats. There is also a dredge used annually in Humboldt Bay that may not be able to stay under the low use limit. There are usually only 5-6 freighters that use the Port at Humboldt Bay annually. There’s no data to indicate that the Port of Humboldt Bay should be administered the same as the Port of Long Beach or Los Angeles or any other major California Port under this proposed Rule. Recommendation: Humboldt Bay should be exempt from the Commercial Harbor Craft Rule.”

Response 3152: CARB staff made no changes based on the received comments. See Response 3158.1 et al. regarding flexibilities included in the 2022 Amendments, Response 4 et al. regarding environmental impact, and Response 3158.10 et al., regarding requests to exempt vessels operating in areas in federal attainment.

Comment 3158.6 & 3378.7: “Environmental -The conclusion that the environmental impacts could be “Less Than Significant or Potentially Significant and Unavoidable” is not acceptable. There is not enough verifiable information in order to approve the Draft Environmental Analysis (EA). The Draft EA should be denied and as such, the CHC Proposed Amendments as drafted are not feasible or cost effective.”

Response 3158.6 et al.: No change was made to the Regulation Order in response to this comment. Section IV.A of the Draft EA provided an explanation of the approach to the analysis. As discussed, the potentially significant adverse impacts on the environment discussed in the Draft EA, and significance determinations for those effects, reflect the programmatic nature of the reasonably foreseeable compliance responses of the regulated entities. The analysis and conclusions contained in the Draft EA analysis were based on substantial evidence, which includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts. The commenter does not specify what information they believe is lacking in the EA, so CARB staff cannot provide a specific response to this comment. However, see Response to Comment 3158-9 in the Response to Comments on the Draft EA regarding how CARB reached significance determinations for potential environmental impacts of the 2022 Amendments. For additional information about the requirements under CARB’s certified regulatory program and the scope of analysis and assumptions behind the EA, see Section I.C-D of the Final EA.

Comment 3158.24 & 3378.25: “A thorough review of Section IV. Impact Analysis and Mitigation Measures , Section 3, Air Quality of the Draft Environmental Analysis needs to be completed. Environmentally this is probably the most important section of the Draft Environmental Assessment and there are statements throughout the document that several modeling options are not available and that in many cases it is not possible to predict

improvements regarding air quality. The sentences below are out of context, but are not meant to be misleading, only illustrative of the difficulties of pin-pointing air quality gains or degradations.

Page D-37: "It is not possible to predict exactly where project related improvements would occur or what each project would involve."

Page D-38: "The ability for CARB staff to correctly estimate the location, amount, and types of projects which could occur in response to increased vessel repowers and new builds, has been determined to be too speculative for a thorough evaluation."

Page D-39: "Therefore, modeling emissions associated with the manufacturing and delivery of marine vessels is not possible. For calculating increased emissions associated with vessel repowers and new builds, the industry standard CalEEMod is thus not a viable modeling option."

Page D-43 "However, the exact location and magnitude of specific health impacts that could occur as a result of project-level construction-related emissions in specific air basins is infeasible to model with any degree of accuracy with the level of information known about the Proposed Amendments." "

Response 3158.24 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3158-8 in the Response to Comments on the Draft EA.

Comment 3158.25 & 3378.26: "The following statement repeats throughout the Draft Environmental Analysis (example taken from EA pg D-27):

'Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this Draft EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to aesthetics associated with the Proposed Amendments would remain potentially significant and unavoidable.'

Are impacts less than significant or potentially significant and unavoidable? While we understand the limits of authority to impose mitigation, the EA should provide more direction in terms of environmental impacts of the Proposed Amendments."

Response 3158.25 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3158-9 in the Response to Comments on the Draft EA.

Comment 3158.26 & 3378.27: "The Page D-13 of the Draft Environmental Analysis states:

'CARB staff predicts most retired vessels would be sold out of state, not scrapped. Based on preliminary conversations with industry leaders, CARB staff expects many vessels to be sold or moved to other states or countries on the North American West Coast. Larger, more costly, or other specialty vessels could be sold and transferred to regions around the globe.'

Our understanding of the Proposed Amendments are to reduce emissions in order to improve the health of those in impacted polluted areas. By selling vessels out of state, the problem would just be shifted elsewhere. Emissions may be reduced in California, but the impact to global warming would remain. In addition, most areas that have maritime commerce already have vessels. A glut of used vessels flooding the out of state market would drive down pricing, leaving owners with a fraction of the value to offset new vessel purchases or repowers in California. As much as we would like to be able to sell our assets somewhere else to offset new vessel costs, this solution seems contrary to the spirit of the regulations."

Response 3158.26 et al.: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3158-10 and Master Response 2 in the Response to Comments on the Draft EA.

Comment 3165.4: "We are also concerned that the regulations may increase GHG emissions. In existing vessels, the mandated Tier IV engines will reduce the ferry passenger capacity by over 50% and will force CCE to make twice as many trips to simply keep up with current demand. The additional trips will require the use of more fuel which will defeat the very purpose of the regulations."

Response 3165.4: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3165-2 in the Response to Comments on the Draft EA.

Comment 3165.7: "The retrofit would add a significant amount of weight (approximately 15 tons) to the vessel. To keep the vessel within its "structural design limit," a retro-fitted vessel's passenger capacity would need to be adjusted down from 390 to 172 passengers – a 218 passenger or 56% reduction. Post retrofit, each vessel would need to make two round trips to Catalina Island to carry its current USCG certified capacity of passengers. The vessel retrofit would burn 100% more fuel on a passenger carried basis, produce more emissions per run and more than double the carbon footprint per passenger carried."

Response 3165.7: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3165-4 in the Response to Comments on the Draft EA.

Comment 3195.11: "Analysis of the data CARB did provide (see Exhibit 1), even putting aside intrinsic overstatement, reveals it projects these rules will contribute daily emission

reductions from CPFVs that will be less than a single ton of nitrogen oxide (NOx) emissions per day and will do so by requiring engines that do not yet exist and are technologically infeasible for these boats, yet will be economically fatal to an entire industry that caters to broadly diverse socioeconomic groups and that supports access by those in disadvantaged communities to sustainable fishing and enjoyment of the state's natural ocean resources. Meanwhile the Rules ignore the transport shipping fleet, so called "ocean going vessels," with roughly 150x more emissions than CPFVs currently contribute, even while they continue to clog our Ports and pollute our communities with excess emissions due solely to congestion in the South Coast basin alone in amounts equivalent to the entire state-wide contribution of CHCs and nearly 10x that of CPFVs."

Response 3195.11: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3195-1 through 3195-9 in the Response to Comments on the Draft EA.

Comment 3195.51: "What is the basis for CARB's belief that fossil-fuel burning engines can be replaced with electric engines fueled by batteries or hydrogen to achieve equivalent performance with less environmental damage?"

Response 3195.51: CARB staff made no changes to the Regulation Order based on the received comments. See Master Response 1 in the Response to Comments on the Draft EA.

Comment 3195.67: "Will there be any impact on fisheries management and state conservation efforts?"

Fisheries management is largely dependent upon the sale of fishing licenses. Every adult angler aboard a CPF vessel is required to possess a California marine fishing license, generating significant fisheries conservation revenues. The total revenues attributable to CPF vessels are calculated for 2018, which is the same year examined by the professional CPA financial assessment regarding CARB's potential financial burden on CPF vessel operators:

- The California Department of Fish and Wildlife reports 1,776,844 resident and nonresident fishing licenses were sold in 2018 with revenues of \$59,876,070. This equates to \$58.95 per license sold.
- The professional CPA documented the annual revenue for two California CPF vessels. The average annual revenue for both vessels in 2018 was \$457,760.
- The typical fees paid by their customers range from \$60 for 1/2 day trip to \$800 for a 2.5 day trip. Across all types of trips, the average fee paid per customer is estimated to be \$287.75.
- Dividing the average annual revenue by the average fee per customer yields an average of 1,986 passengers per vessel each year. With 75% of passengers expected to be repeat users, each vessel is estimated to generate 497 license sales annually.
- At an average of \$58.95 per license sold, each vessel represents \$29,298 in annual license revenue to the State of California.
- With 174 CPF vessels operating in California, and considering the assumptions stated above, the California Department of Fish and Game receives \$5,097,852 annually from license sales to CPF vessel customers which represents 8.5% of its annual sport fishing license receipts.

Another potential ramification to conservation funding relates to a possible reduction in federal funds received by the State for fisheries conservation. This fund, known as the Federal Aid in Sport Fish Restoration fund, allocated \$16.5 million to California in 2018. Funds are received from the wholesale fishing tackle and motorboat fuel sales, then allocated across states based on a formula accounting for each state's number of licensed anglers and water area. The final apportionments vary each year based on the total funds available and the number of licensed anglers across states. In 2018, California received \$10.30 for each licensed angler. Considering there are 174 active vessels, each generating on average 497 license sales annually, CPF vessels account for roughly 86,478 license buyers who represented \$890,723 in federal fisheries conservation funds in 2018. A reduction in their numbers could directly threaten California's future federal funding allocations."

Response 3195.67: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 3174-1 in the Response to Comments on the Draft EA.

Comment 3377.7: *"Zero Emissions*

AWO members are committed to reducing their vessel emissions and lessening their impact on the environment. The tugboat, towboat, and barge industry is already the greenest mode of freight transportation in the country and individual companies are already taking steps to introduce hybrid and zero emissions. CARB's proposed rule states that their end goal is to have all vessels operating in California waters to have zero emissions, but their incremental approach to this goal undercuts the industry's ability to do this by forcing operators to repower, retire, or purchase a new vessel every year. Harbor craft operators typically expect a newly built vessel to have a useful life of 20-25 years and investment decisions are made with the assumption that they can be recouped over this period. The proposed regulations would dramatically alter this calculus, forcing vessels from service after as little as 10 years. Not only is it extremely difficult, and economically untenable in many cases, for an operator to do this, the net environmental impact of forcing the premature retirement of serviceable vessels and replacing them with new builds (even if the newbuild has a lower emissions profile) must be considered as the procurement of materials and disposal of old vessels has an indirect, yet still noteworthy, emissions profile.

The most financially feasible and technologically efficient way for industry to help CARB reach their zero emissions goal within their long-term timeline is to allow a tug, tow, or barge to function for its useful life and then be replaced with a zero-emissions vessel. Tier 1 and Tier 2 engines should be brought up to a higher standard, but new Tier 3 and Tier 4 engines are operating at the most efficient technology available and should be able to run throughout their useful life. Best available technology is already in use here, so we request that CARB add an exemption to the rule that allows vessels currently with Tier 3 and Tier 4 engines to operate for the rest of their useful life with the stipulation that they will become fully retrofitted as a zero emissions vessel when that useful life is up. Moving forward, we remain committed to zero emissions. We are confident that we can get there, but regulations based on unfeasible technology is not the correct route."

Response 3377.7: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3424.2 regarding delaying compliance dates for zero-emission.

Comment 3418: "Thank you. So good morning, Chair Randolph and Board members. I'm Steve Brink, California Forestry Association, Vice President, Public Resources. Today, I'm representing forest products shipments from the port at Humboldt Bay on the north coast. And that's the extent of my comments will be focused on that low-use port.

We provided written comments back in November. And they were catalogued and received and there's been no written response that I can find about our comments, and so that's why I'm here today verbally.

So the port at Humboldt Bay. Two inventoried towing vessels, that's one percent of the statewide total, one percent. CARB used the Port Emissions Inventory Data from Port of Angeles, Port of Long Beach, Port of Oakland. CARB did not use any data from the Port of Humboldt Bay, which is not surprising, because the airshed at Humboldt Bay is in attainment, and always has been, and will continue to be in attainment for the foreseeable future.

With one percent of the towing vessels air quality in attainment, only five to six freighters a year at that port, a low-use port, I don't see any data that would indicate that the Port of Humboldt Bay should be administered the same as the Port of Long Beach or Los Angeles, or any other major California port.

Humboldt Bay should be exempt from the commercial harbor craft rule, period. Thank you for the opportunity to comment."

Response 3418: CARB staff made no changes based on the received comments. See Response 3158.1 et al. and Response 4 et al.

p. Emission Inventory/ Vessel Activity/ Vessel Population

(555) (651.4) (747.2) (864) (986.2) (1071) (1252) (1393.3) (1621) (1699.4) (1787.2) (2558) (3195.64) (3224.4) (3299.1) (3350.1)

Summary of Comment 555 et al.: Some comments broadly indicated that building vessel replacements will emit more carbon, generate more waste, and result in retired vessels in landfills. Other comments indicated that new vessels will be less efficient with regard to passenger capacity, resulting in no net reductions in emissions per passenger, or resulting in passengers buying personal boats and increasing emissions. Commenters affiliated with the sportfishing industry indicated that the uninspected six-passenger or less boats should not be subject to the Proposed Amendments, as they, with few exceptions, are already exempt from the existing harbor craft regulation and are primarily part-time operations. These comments state the inclusion of uninspected vessels only serves to overinflate emissions.

Response 555 et al.: The regulation does not require disposing of vessels, but instead regulates the engines and requires them to meet engine performance standards. This can commonly be completed with engine repowers/retrofits, and the regulation provides flexibility for vessel owners that cannot repower/retrofit, provided they supply "a technical

feasibility analysis provided by a third-party naval architect demonstrating that no modifications are feasible to repower and retrofit the vessel”.

For vessel owners looking for ways to dispose of a vessel outside of a landfill, the Division of Boating and Waterways provides alternatives, including recycling options, and the Surrendered vessel program.

Where a vessel owner chooses to purchase a new vessel instead of repowering (or is unable to repower), the manufacture of a vessel would produce additional emissions. However, manufacturing facilities are also subject to emission limits, application of emission reduction technology and Best Available Control Technology (BACT) requirements as well.

For harbor craft that operates primarily part-time may apply for low-use exceptions set forth in subsection 93118.5(e)(14) based on engine’s Tier level without repowering or retrofitting to meet the engine performance standards requirements.

For more information, see Master Response 3 regarding data and assumptions and Master Response 4 regarding indirect impacts in the Response to Comments on the Draft EA.

Comment 3.3: “Also we only run our vessel at 60 percent power only 15 percent of the day on the water while the other 85 percent of the day we only run the engine at 12-14 percent load.”

Response 3.3: The emission inventory reflects the data that industry reported to CARB on engine activity and fuel use to determine load factors (the percent of maximum power used on average). For main engines, this ranges from 0.16 to 0.50 depending on vessel types. This range suggests that the commenter’s engine operations are not unusual and are reflected in the emissions inventory, averaged with other vessels of the same type. The load factors are shown in detail on page H-21 of the emission inventory documentation (<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>).⁴⁷

Comment 1017.1: “The ability to go on a charter means I do not need to purchase a boat, which would cause GREATER air pollution than a charter boat if you consider how many fishermen regularly depart on these (20-40 fishermen means 20-40 boats that aren't on the water). Consider also these are blue collar business owner/operators who rely on low ticket price to sustain their businesses. Many of the modifications proposed will drive these captains out of business. The net result will be for more individual fishermen to purchase individual boats. Many individual boats will lead to more environment impact than a single large boat. Your analysis is confounded and not taking into account this impact, which is a net negative for the environment. Instead consider gradually improving emission standards for the commercial harbor craft regulation. We can achieve lowering emission standards

⁴⁷ CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation, Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>.

without substantially impacting a business which would in turn drive customers to purchase their own watercraft, thus having a net negative impact.”

Response 1017.1: Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617 and the DOF. The SRIA evaluated the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, gross State product, and output.

Staff presented the following economic impacts of the 2022 Amendments in the SRIA:

Industries that operate CHC would face costs and see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and would face significant compliance costs. The water transportation industry and the fishing, hunting, and trapping industry are estimated to face decreases in output of up to 1 percent in the years of greatest impact.

Under 15-day changes, CARB staff expects there will be fewer vessel replacements, therefore fewer vessel resales for commercial passenger fishing (Please refer to response to comment 10.1). There will be less impacts to small business.

Please refer to response to comment 2228.4 for the impacts of fees paid to federal and state agencies.

See Response to Comment 1017-1 in Response to Comments on the Draft EA.

Comment 1361.2: “Your literature also brings up the health equity issues of neighborhoods surrounding the harbor areas. Here we have some agreement - but only with boats that operate mainly in the harbor.

Sport boats and whale watching boats spend the vast majority of their engine running time offshore, resulting in a minimal effect on the local neighborhoods. In addition to that, they run their engines at low to moderate rpm's to conserve fuel. That results in lower emissions. School bus drivers, not so much.”

Response 1361.2: No changes to the Regulation Order were made in response to this comment. See Response 3195.15 as it relates to low use applicability for vessels operating far from shore. See Master Response 3 and Response to Comment “Workshop-30-1” in the Response to Comments on the Draft EA, which addresses load factors in the emission inventory.

Comments regarding non-CHC emission sources are outside the scope of the rulemaking.

Comment 1458.1: “I want CARB to pls reconsider also this is 2nd time I've emailed I still haven't received an explanation of how much pollution this will remove or EPA impact report on what damage these boats contribute”

Response 1458.1: Documentation detailing the emission inventory is posted online and was also workshopped as early as December 4, 2018. The current documentation is available

online (<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>).⁴⁸ The public process, including over public workshops in 2018, 2019, 2020, and 2021 are detailed on page 37 of the SRIA (<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/appc-1.pdf>).⁴⁹

See Response to Comment 1458-1 in Response to Comments on the Draft EA.

Comment 1540.2: “These systems rob power from the engine so that they have to run harder to produce the same results in moving the boat thru the water. This reduces the fuel economy and increases costs by having to burn more fuel. More fuel being burned negates the "GREEN" savings of what the new emissions system is supposedly saving.”

Response 1540.2: Engine certification for marine engines used in harbor craft do not reflect the trend suggested by the commenter, with Tier 4 engines showing 3 percent less CO₂ emissions over the certification cycle than Tier 3 engines. This is further described and shown in the emission inventory on page H-19 (<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>).⁵⁰ Furthermore, the PM emission reduction from a Tier 4 engine compared to a Tier 0 engine is approximately 95 percent, meaning a Tier 4 harbor craft vessel would have to burn over 2000 percent more fuel than a Tier 0 to offset the emission benefits.

Comment 1574.2: “Many boats will be forced into landfills because the cost of moving them to another state or county would be prohibitive. This long term Hazardous material disposal should be part of the considerations.”

Response 1574.2: The regulation does not require disposing of vessels, but instead regulates the engines and requires them to meet engine Tier standards. This can commonly be completed with engine repowers, and the regulation provides flexibility for vessel owners that cannot repower, provided they supply “a technical feasibility analysis provided by a third-party naval architect demonstrating that no modifications are feasible to repower and retrofit the vessel.”

See Master Response 4 in Response to Comments on the Draft EA.

⁴⁸ CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation, Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>.

⁴⁹ CARB, Proposed Amendments to the Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 Nautical Miles of the California Baseline, Standardized Regulatory Impact Assessment (SRIA), Page 37, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/appc-1.pdf>.

⁵⁰ CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation, Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>.

For vessel owners looking for ways to dispose of a vessel outside of a landfill, the Division of Boating and Waterways provides alternatives, including recycling options, and the Surrendered vessel program.

Comment 1658.2: "I have a problem with your comparison that are both spurred as much is 162 school buses I feel it is very misleading you based it on a bus that is 400 hp running at 20 miles an hour against an 800 hp tier two engine running at 100%

I do not know of many or any sport boats in the bay area that have 800 hp engines the average is around 400 and while fishing we run at 10% power most of the day and cruise at 50% power the rest of the time which is about three hours this cuts are exhaust mission to about 10 buses and I have a tier 3 and she would bring it down even more there are less than 200 boats and there are thousands of school buses. These new engines have to run at full power Bernhardt and have not been proven safe by the Coast Guard to operate in our boat yet yet"

Response 1658.2: No changes were made to the Regulation Order based on this comment. CARB is aware that the CPFV average main engine hp in CARB's CHC Reporting Database is roughly 420-425 hp and that most reported CPFVs have two main engines.

See Response 1703.1 regarding emission comparisons between marine engines and school bus engines.

Comment 1698.4: "I also have questions as to where the data was used to make the assumptions on particulates and amounts of fuel burned per vessel and the pollution that they produce? I have operated sport boats since 1999 and have never once had someone inquire about what, where, and how many hours we operate in a year."

Response 1698.4: Under the 2007 CHC regulation, all CHC with diesel engines that operate in RCW are required to report detailed engine and vessel data to CARB, which formed the basis of the emission inventory. It is not clear if the commenters vessel ('sport boats') would fall under the requirements of CHC regulation, however if they are subject to the requirements then reporting of what, where and how many hours is required by law.

See Response to Comment 1698-1 in Response to Comments on the Draft EA.

Comment 1703.1: "Where are the facts to back up that one charter boat puts out more missions then 160 city buses?"

Response 1703.1: In response to concerns from the sportfishing industry and at the Board's direction, CARB staff made a 15-day change to the Regulation Order to provide a one-time, ten-year compliance extension pathway for CPFV.

The commenter does not directly state, but CARB staff assumes the commenter is referring to the comparison of emissions from a sportfishing vessel to a school bus. The assumptions used to compare CPFV emissions to school bus emissions are stated in the board hearing slides and the video transcripts for the board hearing meeting on November 19, 2021.

Please see the board hearing slides and the video transcripts for the board hearing meeting on November 19, 2021 for the comparison of emissions from a sportfishing vessel to a school bus.

Comment 1783.2: “Have you considered the carbon footprint and negative impact to the environment that scarping the current, fully serviceable, low emissions, propulsion units from thousands of boats, and replacing them with newly manufactured systems, that at this time don't exist. You must consider the total sum gain or loss of your proposal. What will be done with the obsolete units and at what monetary and environmental cost? How many new natural resources will be used up and how much carbon will be created manufacturing new units? When will the new technology exist at the retail level, and at what monetary and environmental costs will the retooling and creating of new production lines cost?”

Response 1783.2: As noted previously, the regulation does not require disposing of vessels, but instead regulates the engines and requires them to meet engine Tier standards. This can commonly be completed with engine repowers, and the regulation provides flexibility for vessel owners that cannot repower, provided they supply “a technical feasibility analysis provided by a third-party naval architect demonstrating that no modifications are feasible to repower and retrofit the vessel”.

See Master Response 4 in the Response to Comments on the Draft EA.

For vessel owners looking for ways to dispose of a vessel outside of a landfill, the Division of Boating and Waterways provides alternatives, including recycling options, and the Surrendered vessel program.

Comment 2574.7: “The Legislature has directed your agency to take prudent action to reduce airborne toxins with the further direction that implementation programs be ‘practicable’ (HSC §39650(k)) as well as ‘cost-effective, and technologically feasible’ (HSC §43013(a)). We appreciate CARB’s efforts to implement policies to reduce emissions that impact climate change and reduce criteria pollutants. However, the proposed rule does not conform to the Legislature’s statutory guidance for regulatory practicability.”

Response 2574.7: CARB staff made no changes to the Regulation Order based on the received comment. See Response to Comment 2574-2 in Response to Comments on the Draft EA.

Comment 2588.7: “When making the calculations for their inventory and health analysis, Staff once again used incorrect assumptions. According to Wei Liu of the ARB, they used AIS (Automatic Identification System) data to calculate what portion of vessel activity was occurring within 24 nm of the California coast.² However, AIS is not required on vessels of less than 65 feet unless they are operating in a Vessel Traffic Service (VTS). A majority of the CPFV fleet is less than 65 feet, and the 2 VTS areas in California are directly offshore of the Golden Gate and LA/Long beach harbors, thus AIS is not required for the majority of the CPFV fleet. The CPFV fleets of San Francisco Bay and LA/Long Beach harbors tend to spend more time fishing inshore than significant portions of the CPFV fleet. Because of this, any use of AIS data to show area of operation will bias the data towards a more inshore area of operation than actually occurs as a whole. A more accurate method of determining area of

operations of the CPFV fleet would be to use log book data from the California Department of Fish and Wildlife (CDFW). All CPFVs must submit daily logs of times and location they spent fishing. Why was this method not used?

CARB staff also used a second method in determining area of operation of CPFVs. This method consisted of a survey that was required by operators of commercial vessels in California. Unfortunately, the public outreach for this effort was not very robust and this resulted in an incomplete data set. I remember filling my report out, but it was not clear at all that ONLY hours and fuel burned in California regulated waters were to be reported. Since there had been new requirements for hour meters that could not be shut off, I, along with many of my colleagues (incorrectly) assumed that we were being asked for total hours of operation annually. Staff acknowledges this issue in Appendix H, where they nevertheless decide to assume that ALL hours reported are from regulated waters. By not correcting this issue, the data are significantly biased towards showing higher emissions in regulated waters than there actually are. Once again, CDFW logs are legal documents that show positions and time spent operating in certain geographical areas. By not using these data, CARB staff are not using the best available science in the assumptions for their analysis.

Much of the CPFV fleet from San Diego spends the majority of their time in the Mexican EEZ where AIS is not required on vessels of less than 150 tons, thus the AIS data is not usable. Most of the CPFV fleet that has AIS has only class B transponders, which are lower powered and less likely to be accurately received by shore stations. Relying on Marine Cadestre (Vessel Traffic information) for accurate locations of the CPFV fleet will not yield accurate results.

When calculating total emissions, Staff used the baseline number of 274 vessels in the CPFV fleet with diesel engines. However, the Sportfishing Association of California and Golden Gate Fisherman's Association conducted joint surveys of ports and were only able to account for 174 inspected CPFVs. It is likely that the remaining vessels are 6 pack charter boats, but the calculations of fuel burn should be different for these vessels as they tend to be smaller and operate much less. Once again, CDFW log book data should be used to quantify where and when these vessels operated. Since CDFW logbook data was not used in order to determine operating areas for CPFVs, I downloaded the logbook data from the CDFW for my vessel (Appendix 2). The logbook data is considered proprietary, so I am not able to access any of the information from the rest of the fleet, but the data is available to other government agencies. My vessel, the New Lo-An, is very representative of the overnight fleet in San Diego. We run a mix of single day and multi day trips targeting pelagic species. The majority of our fishing is done in Mexico, with a significant minority occurring in the offshore waters of the US EEZ off California.

I found that from January 1, 2016 to October 1 2021, we fished for a total of 585 days. Of these days, 312 were spent fishing entirely in the Mexican EEZ, 230 days were spent fishing in the US EEZ more than 24 miles off the mainland shore, and 43 were spent fishing within 24 miles of the California coast. Since our homeport is San Diego, we do spend a portion of every trip operating in regulated waters. When fishing in Mexico, the distance from the harbor entrance to the international border is approximately 6 nautical miles, and the distance from the dock to entrance is approximately 6 miles. We spend significant time

(30 minutes-1 hour) loading bait in the harbor, but at that time the main engines are off, and the only machinery operating is a 35 kW generator. Our standard cruising speed is 10 knots, so this means that we will operate approximately 2-3 hours per trip in regulated waters while we are en route to and from the Mexican EEZ. When heading to the US EEZ, we can assume a total travel time of 6 hours per trip in regulated waters (3 hours each way), and when fishing within 24 miles, we can assume that the entire trip took place in regulated waters. Since we run a mix of single day and multi-day trips, I totaled the number of trips that traveled to each area. I found that we ran 278 trips to Mexico and 156 trips to the offshore (outside of 24 nm) waters of California. Seven trips went to both areas (they started in Mexico and finished in the US or vice versa). This makes a total of 844.5 hours traveling to and from Mexico and 946.5 hours to and from the US offshore waters. We will assume that 12 hours per day were spent operating in regulated waters when fishing within 24 miles of the coast. The remaining hours are counting for passenger loading/unloading, bait loading and fishing. When fishing, the boat is generally anchored, or drifting with no engines running except for the generator. This will add an additional 516 hours of operation in regulated water. During this time frame (5+ years), the boat operated a total of 14,040 hours. If we do the math, we find that the New Lo-An operates 16.28% of the time in regulated waters, not the 83% of the time that Staff calculates using faulty AIS and survey data.

It should be noted that the New Lo-An is a typical overnight/short range CPFV of the San Diego fleet. There are 12 long range CPFVs in San Diego that run a much higher percentage of their trips in Mexico, with a commensurately lower percentage of operating time in regulated waters. Most, if not all of these vessels will be eligible for an exemption based on low operating hours in regulated waters, but it does not appear that these vessels were excluded from the analysis by CARB staff. Of the San Diego fleet, only the 1/2 day boats spend the majority of their time operating in regulated waters. This is a total of 4 boats in San Diego and Mission Bay out of a total fleet of approximately 70 inspected CPFVs operating out of these two harbors.”

Response 2588.7: CARB staff made no changes to the Regulation Order in response to this comment.

CARB’s 2021 Emissions Inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. CARB staff has met numerous times with industry groups since 2018 to develop the proposed inventory.

The updated inventory methodology used data reported between 2010 and 2019 to project future baseline and control emission scenarios for each vessel type, engine type (i.e., main engine or auxiliary engine), and air pollutant. The methodology accounts for the potential for errors in operator-reported data by considering reported cumulative non-resettable hour meter data, reported annual activity (hours and fuel), and measured Automatic Information System (AIS) vessel data to more accurately determine the fraction of emissions from vessels using RCW. For full details of the 2021 Emissions Inventory for CHC, see Appendix H of the ISOR.

Staff identified a total of 42 CPFVs were selected to represent the CPFV fleet of 352 from AIS data. These data were used to assign the fraction of total emissions that occurred within 24 nm of the coast. The denominator, the total emissions, was derived from over 200 reported

vessels that were reported to CARB to meet compliance requirements of the Current CHC Regulation. Using other methodologies, such as operator-reported fuel within the 0-3, 3-24, and beyond 24 nm zones, the total activity within 24 nm was within 3 percent of the methodology derived from AIS data. Therefore, because the two independent methodologies result in substantially similar results, CARB staff has decided to continue using AIS data to apportion activity within RCW for the CPFV category, which matches the methodology used for the other 17 categories of vessels in the CHC inventory.

CARB staff has separated harbor craft into 18 categories in the emission inventory and has included all CPFV vessels in a single category. CARB staff disagrees with the commenter that these two types of fishing vessels should be separated. First, CARB staff recognizes that most vessels are custom built and have at least slightly different operations or business models depending on their design. Rather than creating a category in the emission inventory for each sub-class of vessels, some level of grouping is performed. Because a variety of types – here 6-pack and larger inspected CPFVs – are included proportionally in the input data, there is no skewing of the final emissions, costs, or benefits of the regulatory requirements. Whether a 6-pack or inspected CPFV, both are licensed by the CDFW to perform sportfishing activities. On average, the 6-pack vessels operate fewer hours per year than the inspected fleet, and these activity values have been proportionally considered in the emission inventory. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply without upgrading to the proposed performance standards.

The CDFW logbooks referenced by this commenter do not provide enough data for CARB to calculate operating time within 24 nm across the fleet. This commenter attached the logbooks for their vessel, but without firsthand knowledge, and a clear documentation of daily engine operating records of how the vessel is typically operated on different types of trips, calculating runtime for each engine would not be possible. The commenter and other vessel operators have not provided daily trip-level information that is sufficient for CARB to calculate the geographic distribution of emissions from the fleet using CDFW logbook data.

See Responses to Comment 2588-1, Comment 2588-2, and Comment 2588-3 in Response to Comments on the Draft EA.

Comment 2602.8: “CARB’s underlying inventory analysis appears to use deterioration factors associated with older outdated marine engine technologies. In that regard, it is the case that NOx emissions tend to decrease as current marine engines age, not increase. In addition, it also appears that CARB’s analysis fails to account for the reduced emissions rates that result after engine rebuilds. To fix these problems, CARB should use the applicable deterioration factors from EPA’s certification database, and then CARB should make the necessary corresponding adjustments to its inventory analysis and cost-benefit calculations.”

Response 2602.8: The marine engine certification data from the U.S. EPA database (linked below) does not show any data supporting the idea that NOx emissions decrease over time. Instead, for the marine compression ignition engines certified in the last 10 years (5,115 engines), over 60 percent (3,040 engines) reported deterioration of PM emissions factors when put through certification testing.

This certification testing, although useful, does not truly replicate real world conditions and therefore may underestimate deterioration outside of a lab setting. CARB staff is currently reviewing data from in-field testing of off-road compression ignition diesel engines, and plan to update deterioration factors by 2023. This in-field testing has the advantage of reflecting engines that have operated in real world conditions and will determine the extent to which new technologies do deteriorate. This update will inform future inventory work.

The certification data for compression marine engines is available online here: (<https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment>).⁵¹

See Response to Comment 2602-3 in the Response to Comments on the Draft EA.

Comment 3118.13: "Vessel Inventory

Under existing harbor craft regulations, towing vessel operators are required to report to CARB the number of vessels they operate in California waters. Rather than relying on this reporting to determine the size of the towing vessel population, CARB used a U.S. Coast Guard database that provides information on vessel ownership and regulatory status, but not area of operation. When CARB identified more towing vessels in the Coast Guard database with a California home port than the number of towing vessels reported to CARB as operating in California waters, the agency assumed, without evidence, that CHC companies have been significantly under-reporting their fleet sizes to CARB.

AWO has repeatedly pointed out that the Coast Guard database is designed to track the ownership and regulatory status of vessels and provides no insight or information into where vessels operate (which can, of course, change as vessels are mobile assets). Despite this, CARB has used home port information from the Coast Guard database to conclude that an additional 52 towing vessels are operating in California waters, on top of the 177 towing vessels reported to the agency, for a total of 229. This has led the agency to overestimate the number of unreported vessels, the population of towing vessels operating in California, and their cumulative impact on air quality.

In past comments, AWO has demonstrated to CARB staff the error of using the Coast Guard database to identify vessels operating in California. We have also provided evidence in both written comments and multiple meetings to show that emissions from vessels that have not reported their hours are only a fraction of the scaling factor CARB has used to inflate the emission inventory. We have explained the basis for these discrepancies and told the agency how it can obtain accurate data. Inexplicably, CARB has rebuffed all our efforts to provide an accurate vessel inventory. Indeed, at the CHC Workshop #4 held on March 16, 2021, CARB acknowledged that the agency was aware that its vessel counts did not accurately reflect the actual number of vessels in the applicable airshed, but informed attendees, without further explanation, that CARB would not be revising the vessel count numbers in the draft

⁵¹ U.S. EPA, Annual Certification Data for Vehicles, Engines, and Equipment: Marine Compression-Ignition (CI) Engines, 2020, last accessed July 7, 2021, <https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment>.

regulation. These reckless technical and procedural errors jeopardize the entire basis for the regulation and subject it to heightened legal scrutiny.

AWO contracted with Ramboll, a third-party engineering consulting firm, to conduct an independent assessment of the number of towing vessels operating in California and the likely impact of emissions from those vessels. Using Automatic Identification System (AIS) data for 2019, Ramboll was able to account for every towing vessel operating within California waters during that year. The AIS data affirms that CARB has significantly overcounted the size of California's towing vessel fleet. Ramboll found that only 200 towing vessels operated within 100 nautical miles of the California coast, nearly 30 vessels fewer than CARB estimated to be working in California.

The CARB model also assumes that non-reporting vessels operated the same number of hours as reporting vessels. Using the AIS data, Ramboll was able to determine the number of hours the towing vessels operating in California waters were moving, which is a reliable predictor of engine hours. Using a CARB-provided list of vessels that filed reports in 2019, AWO was then able to isolate the reporting vessels from non-reporting vessels. 3 The non-reporting vessels averaged just 18% of the operating hours of the reporting vessels. This means that the total unreported hours are just 2.3% of the total reported hours, not the 29% that the CARB scaling factors had estimated. This discrepancy makes sense considering that CARB's reporting requirements have been in place for more than a decade, and the vessels companies are most likely to overlook in their reports to CARB are either those vessels that are transiting through California waters but not calling on California ports or those that are seldom used in California.

Ramboll then ran emissions estimates based on this accurate assessment of towing vessel operating hours and found that NOx and PM emissions were only 72% and 62%, respectively, of the figures that CARB's improperly inflated model produced."

Response 3118.13: No changes were made to the Regulation Order in response to this comment. See Response to Comment 3121-1 and Master Response 3 in the Response to Comments on the Draft EA.

CARB staff agrees that AIS data is generally a good indicator of where vessels operate. Staff used AIS data to calculate the percentages of CHC activity spent within 24 nm in RCW (Please refer to Appendix H of the ISOR and Master Response 3 in the Response to Comments on the Draft EA for how AIS data was used to calculate the percentages of CHC activity spent within 24 nm in RCW).

However there are several major issues when relying solely on AIS to develop an emission inventory. Namely, the AIS data does not provide vessel-specific information such as number of engines, hp of engines, age of engines, or specific activity information. Additionally, when CARB staff developed the 2021 Ocean Going Vessel Emission Inventory using AIS data as the primary data source, they found that the AIS data had various discrepancies. Of the 3,160 ocean going vessels that visited California ports in 2020, fully 404 vessels did not show up in AIS records, even though they recorded a port vessel visit. These vessels were over 400 feet in length, with a capacity of 10,000 tons or more, and were most certainly running their AIS transponder (or would have posed an enormous safety risk to all vessels in the region).

Upon investigation CARB staff found that AIS data is not foolproof and does contain errors. In this case, the AIS data for the 404 vessel visits identified them as smaller vessel types not qualifying as ocean going vessels (even though these vessels were large container ships or tankers). The vessel also were not borderline or questionable cases of meeting the definition of an ocean going vessel. One example would be IMO 9393022, which is a container vessel over 1,100 feet long with 100,000 deadweight tonnage (DWT) capacity, which was not identified as being large enough to qualify as an ocean going vessel in the AIS data. This error was later corrected by working with the Marine Exchanges in California, as well as SCAQMD, however it demonstrates that the AIS database is not the most accurate source when review vessel populations and types. AIS data also has no legal requirements to meet for completeness or accuracy.

In contrast, the USCG database with vessel registration is a legally mandated registration program, similar to the Department of Motor Vehicles (DMV) registration required of cars and trucks. Registration of vessels by owner and hailing port, as well as their current status, are required by law. The USCG can also perform inspections of vessels to ensure they are registered and perform citations for unregistered vessels.

As the commenter references, it is possible for a vessel to have a hailing port in one state but operate in another. This could mean that (1) some of the vessels registered in California are operating primarily in other states, and (2) some vessels not registered in California are operating in California waters. However, for there to be a significantly lower number of vessels operating in California than registered, there would have to be an ongoing systematic reason to register vessels in California before moving them out of state, and similarly an ongoing systematic reason not to bring in vessels to California that are registered out of state. If any data on this exists that the commenter can provide, CARB staff will explore it fully, but barring such data, hold that the legally required registration program constitutes the best available data, particularly when compared with a useful but not error-free AIS system.

The second issue related to AIS data is, as noted above, the data set does not directly provide activity. Activity can be derived from movement shown in the AIS data using a number of assumptions, primarily (1) the engines are running only when the AIS data shows movement, and (2) the load of the engine or total fuel use can be derived using the speed of the engine, or some mix of speed and operations. There are two major issues with this approach when considering tow boats. First, any period of operations where the tow boat is stationary but with engines either idling or engaged to maintain a position (either while towing a large vessel or maintaining position in preparation for operation) would not show up on AIS data as movement and therefore activity. It is not clear, without significant operational data, whether this would constitute a very small or very large error bar around activity using AIS.

Secondly, AIS data provides no information on load factor, which is how much of the engine power is being used at any given time. For other categories, such as OGV, the load factor is calculated based on the speed of the vessel. However, for tow boats, where the main purpose of the vessel is moving another, often much, much larger vessel, load factors (or vessel fuel use) would be almost impossible to calculate directly from the AIS data.

The activity and load factor data used in the inventory is based directly on the reports from tow boat operators in California (which are required to be reported using a non-resettable hour meter) directly capture engine operation (not derived or estimated). The reporting data also includes fuel use, which directly reflects power use and therefore average load factor of the tow boats. This source removes the errors associated with AIS activity estimation and is reported directly from vessel owners.

CARB staff would agree that the current methods of determining non-reported population and activity are certainly inferior to full compliance and reporting from tow boat vessel owners, and will continue with outreach efforts to achieve as high a reporting rate as possible. However, given the stated errors and uncertainties in AIS data, staff believes the USCG registration data and owner-reported activity data are by far the best data sources available for non-reported vessels.

Comment 3118.17 & 3121.11 & 3377.8: "1.2 vessel and Emission Inventory and Comparison with CARB Estimates

We used the AIS records to identify tug and towboats using vessel identification numbers 31 and 52, and American Waterways Operators (AWO) provided more detailed input for their vessel fleet including primary vocation, engine power, Tier level, and, in some cases, hours of operation in California waters. Table 2 shows the comparison of the vessel population found operating within 100 nm of the California coast during 2019. CARB (2021) reported that they identified the population of 177 tugs and towboats through the harbor craft reporting in Table H-3 and upwardly adjusted that inventory to account for unreported vessels through Coast Guard lists at California home ports. The AIS records find only 200 tug and towboats (23 vessels or about 13% more than reported by CARB) during 2019 compared with CARB's estimate in Table H-3 of 229 vessels or 29 more than were reported in the AIS records.

[See Appendix B for Table 2 provided in Comment #3118.17]

We used the AIS records to determine hours of operation for each tug and towboat operating in California waters out to 100nm during 2019. The average hours for AIS compared favorably with the CARB averages except for towboats where the operating hours about half that estimated by CARB. Total and average hours at less than 0.1 knots speed were considered to use no propulsion power, but auxiliary engines running at normal loads, though many tugs at their base will use shore power for auxiliary loads such as to keep the AIS transponders emitting a signal.

AWO supplied tier and power of the main and auxiliary engines for their members' fleets as summarized in Table 3. For other tugs and towboats found in the AIS data, we used CARB default information with Tier 1 emissions rates to towboats (including ATB) and Tier 2 to tugboats to hours of operation. The AWO supplied fleets generally had higher installed power than the CARB averages by vessel type, so using the CARB default for AIS extra (non-AWO) fleets leads to a conservative overestimate of emissions.

[See Appendix B for Table 3 provided in Comment #3118.17]

The CARB default and AIS hours of operation were combined in the emissions to estimate tug and towboat emissions for 2019 as shown in Table 4. When applied, deterioration and

fuel corrections primarily increase PM emissions relative to our baseline estimate. We also investigate the impact that fleet mix of engine Tier levels could have on average emissions rates primarily increasing PM emissions rates. The Tier levels for the AWO fraction of all vessels was provided, while CARB default fleet mix was used for the other tugs and towboats found in the AIS records.

[See Appendix B for Table 4 provided in Comment #3118.17]

1.3 Assumptions

- AIS data using a <0.1 knot cutoff to eliminate vessel activity when main (and often auxiliary) engines are at least low power or entirely off. The '<0.1knot' criteria best matched the propulsion engine time for tugboat (4% overestimate) and towboats and others identified in AWO fleets (4% underestimate).
 - Under <0.1 knot, the auxiliary engines were assumed to continue to be used to supply power for the AIS and other electrical demands. This is a known overestimate because many tugs plug into shore power while at base.
- Based on the CARB default model year, we used Tier 1 engines for towboats (both ATB and others) and Tier 2 for tugboat-Escort/Ship Assist.
 - CARB reported to have used a distribution of Tier levels; Andrew Daminao (CARB, email to Charles Constanzo, Friday, September 3, 2021 8:55 AM) provided a file 'Towing Vessel Inventory 2019' that provided information about the fleet mix by tier level.
 - Shown in Table 5 is a comparison of the impact on emissions that fleet mix could have compared with either Tier 1 or Tier 2. The small fraction of Tier 0 in the fleet has a significant impact (greater than 50% for DPM) on towboat emissions rates estimated and less but still significant on the tugboats.
 - AWO provide fleets' engines characteristics for 2019 that had generally higher Tier levels and averaged lower emissions levels than the fleets provided by CARB.

[See Appendix B for Table 5 provided in Comment #3118.17]

- The deterioration of emissions due to age is a large uncertainty given that engines are
 - regularly rebuilt and that historic regulations have encouraged engine rebuilds with emission upgrades to higher Tier levels.
 - CARB (2021) assumed that towboats would average a model year of 2003 (Table H-1), which in 2019 is 16 years old and past their useful life (Table H-8) of 14 years for main engines. This would increase NOx emission rates by 24% and PM by 77% for towboats.
 - CARB (2021) assumed that tugboats would average a model year of 2009 and be 10 years old in 2019. This would increase NOx emission rates by 15% and PM by 48% for towboats.

1.4 Conclusion

We demonstrated using publicly available AIS records that it is possible to accurately identify vessel activity spatially defined. Individual vessels are identifiable through MMSI numbers unique to the AIS transmitters along with their actual activity within California waters. Using

the AIS data, CARB can more accurately identify the unreported vessels and not rely on a less reliable list of vessels by home port.

Overall, the number and emissions from tugs for both NOx and PM (including towboats) appear to have been overestimated in Appendix H. The emissions overestimate depends on several input variables, but engine emissions deterioration and fleet fraction, especially the remaining Tier 0 engines still in operation, have a significant effect on PM emissions rates.”

Response 3118.17 et al.: A lengthy discussion of the limitations of AIS is covered in the Response 3118.13, including issues relating to accuracy, the choices for population and activity.

It is very notable in this comparison that the average hours of operation for tug and tow boats main engines from the AIS method was 1,350 hours per year, while the reports directly from vessel owners using non-resettable hour meters was 1,936. Unless vessel owners are overestimating or overreporting their own activity, it further demonstrates that AIS data is extremely useful for characterizing where vessels operate, but has more limited use for accurately characterizing activity of harbor craft.

CARB staff also did not use any default for the engine tier of any vessel types, but instead use the age distribution reported by vessel owners. Where average age or engine tier is shown, it is provided only for informational purposes to show some vessel types are older, on average, than others. An example of the age distribution of vessel types is shown on page H-14 of the emission inventory documentation (<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>)⁵² and is available in detail in this emissions inventory release itself.

Comment 3121.37: “Additional Comments

Overstatement of CHC Air Emissions AmNav has serious concerns that CARB has relied on inaccurate information to justify the proposed regulatory concepts. We see no justification for upwardly scaling the CHC vessel population from the February 2019 reported figure of 1,928 vessels to align with a U.S. Coast Guard dataset showing 3,698 vessels. The misuse and misinterpretation of the data set has led to CARB artificially inflating California’s vessel population and consequently the overstatement of air emissions from towing vessels in California.

While our examination of the data was hampered by our company’s response to the COVID-19 crisis and CARB’s unwillingness to extend the comment period, we can still safely conclude that there is no rationale for CARB making the conclusion that our industry is under-reporting in any significant way. We find the following flaws in CARB’s use of the dataset and the conclusion they draw from the data.

⁵² CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation, Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>.

- CARB is confusing Hailing Port with area of operation and counting vessels that do not operate in California as non-reporting vessels.
- CARB is counting vessels that are either not properly documented to operate or are no longer in commercial service because of their age.
- CARB failed to use readily available sources of vessel information to validate their assumptions.

All California harbor craft must maintain and provide extensive records of operation pursuant to 17 California Code of Regulations (CCR) § 93118.5. But CARB is asserting that nearly half of the harbor craft in California do not comply with reporting requirements – i.e. 1,928 CHC operators report their operations to CARB while U.S. Coast Guard data reflects an additional 1,770 vessels with hailing ports from California. CARB’s incorrect starting assumption is that “hailing port” is synonymous with operating area and that 1,770 vessels are not only not reporting but are operating with hours that are equivalent to the industry average per vessel. A vessel is not required to set their hailing port as the area they operate in and hailing port is more often reflective of the owner’s offices or state of legal presence. In truth towing vessels reporting to CARB have hailing ports in many states. This lack of rigor suggests that CARB is inflating the number of purported CHC vessels to demonstrate a greater risk to the airshed and to help justify the proposed concepts.

CARB’s use of the Coast Guard dataset is also flawed because many vessels included in the dataset are not legally allowed to operate under current regulations. AWO discovered that at least 37 of the tank barges in the list are built before 1983 – most likely with single hulls and legally prohibited from carrying oil in U.S. waters. These vessels likely do not operate in California or anywhere else. Other vessels in the dataset lack Certificates of Documentation (COD) and therefore cannot legally operate in U.S. waters. All told, from the data that AWO members had extraordinarily little time to review, at least 69 out of 217 towing vessels included in the Coast Guard’s data have either expired CODs or work outside California.

CARB references 244 as the number of towing sector vessels, excluding barges and tank vessels, within California (13 ATBs, 73 ship assist/escort tugs, and 158 near-shore/ocean-going vessels). Based on the above we know this number to be inaccurate. To find the facts our trade organization, AWO, obtained towing vessel population data from the Marine Exchange of Southern California and the San Francisco Marine Exchange, data clearinghouses for vessel activity throughout the state. This data included details on all tug escorts, assists, tank barge escort transit logs and an AIS search for active towing vessels in SF, SoCal, San Diego and Port Hueneme. This data showed that in the two-year time period a total of 142 vessels, classified as towing vessels by the USCG, were active in CARB regulated waters. This includes 13 ATB units that call these ports and more than 10 tug barge combinations that called less than 10 times in the two years, likely leaving them well below the 300 / 80-hour low operation limit. We concur with AWO’s conclusion that CARB should also disclose its exact methodology for determining its vessel inventory and justify its decision to augment that inventory with misinterpreted Coast Guard data of questionable applicability.”

Response 3121.37: A discussion of the USCG data for population is covered in Responses 3118.13 and 3118.17 et al., including hailing port and the use of AIS data.

In addition, and relevant to this comment, the USCG registration requires a fee and must be renewed annually.⁵³ Although this would not technically preclude a vessel owner from continuing to register and pay for a vessel they are not operating, it is not immediately clear why a significant number of barge owners would continue to pay for non-operational equipment to remain registered in California. Any vessel not currently registered with the USCG was not included in the population used by the inventory (i.e., previous vessels registered with the USCG that are no longer current on registration).

The vessel registration did not include details such as engine model year, therefore it is not possible to determine the legality of operating the tank barges solely from the original vessel build date.

To reiterate the response to Comment 3118.17 et al., although it possible for a vessel with a hailing port in California to operate out of state, and for a vessel registered in another state to operate in California, any large scale difference in population from the vessel registration would require an ongoing systematic reason for vessels to be registered in California and then move out of state, while simultaneously being discouraged from registering out of state and operating in California. If any data is available demonstrating that these effects are occurring, CARB staff will fully investigate it. Barring such data, the inventory does not have cause to reflect that California broadly moves registered harbor craft to other states for operation outside California waters while not receiving any vessels with hailing ports in other states.

Comment 3125.4: "Balboa Island Ferry is also considerably different than the other short-run ferries in California. Balboa Island Ferry travels about 900 feet across Newport Bay from Balboa Island to the Balboa Peninsula. Balboa Island Ferry's small engines and short trips result in negligible emissions. Each engine consumes an average of 0.5 gallons of diesel per hour. Thus, if all three vessels operate 365 days per year-which they do not-for 16 hours per day, they would need 8,760 gallons of diesel. Based on CARB's most expensive projected diesel price of \$2.38 (recognizing that current prices are quite a bit higher), that would cost Balboa Island Ferry under \$21,000 per year. This is considerably less than the CARB estimates for fuel cost for an average short-run ferry. Thus, Balboa Island Ferry contributes much less to short-run ferry emissions than the model ferries CARB used to conduct its projections, which travel much longer distances and use larger engines, and our ferries should not be subject to the same requirements.

Lastly, Balboa Island Ferry transports approximately 350,000 motor vehicles and 1.6 million passengers per year across the Newport Bay. Without the ferry, all 350,000 vehicles would have to take the alternative route: a commute of about six miles. Conceivably most of the pedestrian passengers would also have to take this route by personal vehicle, taxi, or rideshare. CARB failed to consider the emissions of these automobiles taking the alternative in any analysis. Further analysis should be undertaken to account for these emissions."

⁵³ USCG, National Vessel Documentation Center FAQ, last accessed February 5, 2021, <https://www.dco.uscg.mil/Our-Organization/AssistantCommandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/National-Vessel-Documentation-Center/National-Vessel-DocumentationCenter-FAQ/>.

Response 3125.4: If this activity and fuel was reported to CARB, then it is reflected in the inventory. The inventory may average activity among similar vessel types, however that means the lower-than-average activity of Balboa Island Ferry is included in the overall activity average for short-run ferries.

See Response to Comment 3125-3 in the Response to Comments on the Draft EA.

Comment 3147.6: "CARB Vessel Count Fundamental to the proposed regulations is an understanding on behalf of CARB staff that, over one third of subject vessels, as stated in Initial Statement of Reasons, operating in California have not satisfied the reporting requirements of CARB's regulations. This number is arrived at by comparing the number of vessels that report to CARB and vessels that list a California hailing port on their U.S. Coast Guard Certificate of Documentation as of May 2019. This understanding is wrong on several fronts. It does not recognize how hailing port is determined, it includes vessels that are not operating and it does not recognize that many of these vessels have no engines at all. Additionally, while it includes fishing vessels in the count it does not propose in-use requirements for this type of vessel. This misconstruing of the data makes the assumptions on impacts of the emissions from vessels and benefits of the proposed regulations nebulous.

While it would be concerning if a significant number of vessels are not meeting the existing CARB reporting requirements, there is no actual evidence that this is actually happening. CARB has had the USCG vessel data since May of 2019 which includes the address for all of these vessels owners that are supposedly not reporting. CARB has done nothing to reach out to the vessel owners to find out why. It is hard to believe CARB is genuine in their concern about under reporting when they have done nothing with the information they currently have to enforce their existing requirements.

Without examples of the purported widespread under reporting the justification for the burdensome Facility Reporting Requirements and Vessel Identifiers and the very justification of the proposal based on Emission Inventory Methodology is all suspect based on the vessel count provided by CARB.

Under U.S. Coast Guard vessel documentation regulations Hailing Port is not closely defined and does not necessarily mean the Port in which the vessel operations. 46 CFR 67.119 Hailing port designation only requires that the owner of a vessel must designate a hailing port to be marked upon the vessel and that the hailing port must be a place in the United States and include the State, territory, or possession in which it is located. Generally, this is the port in which the managing owner of the vessel has their office, or which is nearest to their office; the home port of a vessel. This means the hailing port has more to do with the vessel ownership than where it operates. This is not always consistent and when vessels are sold the hailing port does not always get updated to reflect this change. Due to the constantly changing operations of vessels, the hailing port is rarely updated just because the vessel starts operating in a different port. Relying on hailing port as a measure provides an inaccurate count of vessel potentially subject to CARB regulations as many of these vessels do not operate in California.

Of the vessels on the U.S. Coast Guard list with a valid COD, 1,069 are Commercial Fishing vessels. These vessels represent nearly 30% of the overall fleet included in the count of

vessels that are not reporting to CARB and as vessels that contribute to the overall emission inventory yet they are not being included in the proposed "in-use" requirements. CARB's rationale for excluding Commercial Fishing vessels is based on "the small profit margins in the industry, demonstrated lack of feasibility for Tier 4 repowers and retrofits, competition with out of State and global markets, and tendency to conduct the majority of their operations far from the coast." This is equally applicable to ocean going tug boats and is not justifiable if they represent such a significant part of the overall fleet.

As reported to CARB already, commercial vessels have many unique identifying numbers including the USCG Documentation Number, the International Maritime Organization number, Call Sign Number and Maritime Mobile Service Identify Number. It seems that CARB intends for people on shore to ignore all of these other identifying features and instead look for the 5" high number that was assigned by CARB. This notion reflects how out of touch CARB is with the maritime industry. Instead of creating an entirely new numbering system CARB should develop a methodology that utilizes existing technology and databases of these numbers to create an accurate vessel count. If a unique number needs to be created simply provide the vessel with a certificate it can show to a terminal or inspector as evidence that they are registered."

Response 3147.6: A full response on the use of USCG data, along with consideration of hailing port, and alternatives to estimate population, is covered in Responses 3118.13, 3118.17 et al., and 3121.37.

CFVs are not exempt from the Regulation Order. Requirements for CFVs are outlined in Subsection (e)(13) of the Regulation Order. CFVs will be required to operate with a Tier 2 minimum engine standard. CFVs with older Tier 1 or pre-Tier 1 engines must update to a Tier 3 standard by the compliance dates outlined in Table 21 in the Regulation Order. CFVs with Tier 2 engines are considered compliant and will not be required to upgrade to Tier 3 according to the compliance dates in Table 21.

After 12 years of implementing the current CHC Regulation, it has become abundantly clear to CARB CHC Program staff that there is a significant reporting deficit in the CHC sector. CARB staff's recent efforts to work with stakeholders and their trade organizations during the last four years of this rulemaking to update the CHC emissions inventory populations have revealed some operating sectors have developed long-term reporting deficits as operators have been shown to have periodically brought large interstate towing vessels into RCW without reporting to CARB for years. This is in violation of Subsection (h)(4)(A) Initial and Compliance Plan Reporting Requirements, of the CHC Regulation requiring all operators to submit CHC report to CARB's E.O. within 30 days of entering RCW. Subsequent efforts to track the vessels and operators down by CARB staff have revealed that some of these vessels operated in RCW with non-compliant engines for years. The labeling requirement is intended to provide CARB staff and any other public observers a way to easily recognize and identify compliant CARB-reported vessels and delineate them from non-CARB reported vessels that may be operating non-compliant engines in their communities.

Comment 3195.15: "There are currently 577 CPFV licenses issued in California to both inspected and uninspected vessels. Approximately 40% of the inspected CPFV's are federally

licensed by the National Oceanic and Atmospheric Administration (NOAA) as "Commercial Highly Migratory Species Fishing Vessels." This group primarily fishes for tuna in international waters. Of these 577 vessels, 403 are "uninspected" vessels for which we believe the CARB assumptions substantially over-estimate usage by not adequately accounting for certain important variables and unknowns, including:

1. 225 Six-Pack Charters Powered with Gasoline Motors, Which Are Not Subject to The Proposed CHC Regulation

Approximately 225 of these vessels are smaller six-pack charters with outboard gasoline motors, NOT diesel. Since these gasoline-powered vessels are not regulated by this rule, they will have a competitive advantage over the regulated diesel vessels.

2. The CHC "Low Use" Exemption Threshold is Insufficient to Accommodate Transit Time to and from Port for Vessels Operating Almost Exclusively in International Waters

A concern of many of the offshore vessel operators is that the low use hours modeling in state waters is inadequate for them to simply transit directly from a California port to international waters. Yet 95%+ of their operating time is in international waters, outside of the 24-mile radius, and thus should not be regulated by this rule. This is just one of many examples where CARB's lack of analyzing subcategories with CPFVs is overstating the emissions and impacts from the entire category.

3. The CHC Regulations are Based on Erroneous Passenger Load Data by Including Part-Time Six-Pack Charter Operations

The six-pack charters typically operate only a couple days a week in season and frequently, if not usually, take more limited loads (i.e., 2-3 passengers at a time), and only a small number operate what would be considered full-time. These vessels are colloquially, but not pejoratively, called "Weekend Warriors" in our industry. Because of these and other major differences, it does not make reasonable sense to combine the inspected vessels and the six-pack boats in the same category or to put six-pack diesel owners at a disadvantage to their gasoline-powered competitors. Instead, all six-packs vessels should be considered under a recreational vessel rule that will be developed in the future.

4. The Supporting Materials Relied Upon for the CHC Fail to Account Adequately for Unrelated Emissions Impacts in Heavy Sea-Going Traffic Waterways

The analysis presented in the CARB supporting materials does not differentiate or properly account for the impact of disparate operations in heavy traffic waterways, but instead lumps in other marine operations in the largest ports and some of the busiest waterways in the world, including those in the South Coast Air Basin (SCAB) and the Bay Area Air Basin (BAAB). CalEnviroScreen 3.0 demonstrates that several marinas and harbors where CPFVs have a significant number of vessels are not located within highly impacted pollution zones, which conversely are overwhelmingly affected by emissions from operations outside the proposed rule. CARB's own health benefit analysis suggests only 7% of the health benefits from the proposed rule will occur in San Diego County where 50% of the inspected fleet is located.

5. The Proposed Rule-Making Fails to Differentiate its Data for the Multi-Function Operations of Some CPFV Vessels

Some owners of CPFV's conduct commercial fishing, excursions, diving services and workboat/educational type operations. CARB has made no effort to differentiate these multi function boats."

Response 3195.15: In response to concerns from the sportfishing industry and at the Board's direction, CARB staff made a 15-day change to the Regulation Order to provide a one-time, ten-year compliance extension pathway for CPFV. Staff also made a 15-day change to the Regulation Order clarifying that non-diesel-fueled six-packs under 5 tons that are not required to register with USCG are exempt from the regulation. See subsection (c) Exemptions (5).

CARB staff acknowledges that exempting non-diesel six-pack vessels could create a competitive disadvantage for diesel six-pack vessels. However, emissions reductions are needed from all sources of diesel emissions. The primary goal of the 2022 Amendments, as discussed in Chapters I and II of the Staff Report, is to reduce emissions of harmful pollutants from diesel emissions including DPM, which is a carcinogen.

The commenter points out that many of the CPFVs fish in international waters or are "weekend warrior" vessels that operate infrequently. The CHC Regulation applies to operation of vessels within RCW, which is within 24 nautical miles of California. Vessels that operate under the low use thresholds as provided in subsection (e)(14) and described in Chapter IV of the Staff Report would be eligible to apply for a low use exception. Also see Master Response 3 in the Response to Comments on the Draft EA regarding data accuracy and assumptions.

Six-packs that operate commercially are not recreational vessels. Recreational vessels are defined in the Regulation Order in subsection (d).

Comments discussing non-CHC emission sources are outside the scope of this rulemaking. Based on emission inventory data, and as presented at the March 24, 2022 Board Hearing, CPFVs accounted for 11 percent of total emissions in 2023 in CHC sector, which represented the same percentage as Ferries. Furthermore, the emissions and health benefits of the 2022 Amendments will not be limited to San Diego County.

CPFVs are delineated from CFVs based on the definition of CPFV in the Regulation Order language: "Commercial Passenger Fishing" (also called "Charter Fishing" or "Sportfishing") means any coastal or offshore vessel used for sport fishing, charter fishing, or any other type of fishing activity where individuals other than the owners or operators of the vessel are on board the vessel to perform fishing activities in exchange for payment to the vessel owner/operator. Commercial passenger fishing vessels include vessels that provide both day and overnight trips, including trips that traverse in and out of RCW."

Otherwise, CARB staff differentiates reported primary and secondary vessel vocations in the CHC Reporting Database as reported to CARB by operators utilizing the reporting forms posted on CARB's CHC Website (there are columns for operators to report both primary and secondary vessel vocations). If a vessel is working in multiple vocations and the primary

vocation is not clear, then it is assigned a classification in the inventory based on the vocation with the majority of operating time after additional clarification on annual hours of activity in each vocation from the operator.

Comment 3195.27: "After announcing to the press that a single CPFV contributes the same emissions as 162 school buses, the industry had SCS Engineers (SCS) evaluate the claim. It was conveyed to CARB staff in a Zoom call that it was a disingenuous claim at best. CARB staff responded to the criticism by creating a fact sheet with the claim for its website and for distribution.

For the comparison to school buses, CARB staff used a bus equipped with a modern Tier 4 engine with DPF operating at low speed. For the CPFV, CARB staff used the maximum certified emissions allowed for a Tier 2 engine and multiplied it by two. Beyond the apples to oranges comparison that ignores there are not approved Tier 4 engines with or without DPF for CPFVs, CARB intentionally misleads with the example by artificially lowering emissions from the bus and ignoring the operational profile of a CPFV and assigning maximum possible emissions. In addition, the example is used to create an emotional response and fully ignores the risk profile to receptors of school buses operating months of the year around children where CPFVs operate in harbors and spend much of their time in unregulated waters. CARB lashing out in this manner can only be seen as an attempt to try to discredit the legitimate issues of social justice and equitable ocean access that the proposed rule raises with vessel owners working with Title 1 schools, at-risk youth, veterans, and other non-profits to provide ocean education and access.

Specifically, SCS found the CARB comparison disingenuous for the following reasons:

CARB is comparing a modern school bus with Tier 4 engine and DPF filter operating at 20 MPH to the maximum emissions allowed on a CPFV with two Tier 2 engines per vessel, which is common for CPFVs.

Bus engines are smaller with less horsepower than the engines used on inspected CPFVs, so it is not an apples-to-apples comparison on engine capacity.

Tier 4 engines are readily available for buses; they do not currently exist for CPFVs.

CPFVs do not operate at maximum capacity; they troll for fish at low rotations per minute (RPMs) and sometimes even anchor or drift offshore on a single engine.

CARB's assertion implies that all 352 CPFVs are operating with these emissions (as previously mentioned they are including six passenger boats to inflate the emissions from the CPFV category). This disregards the fact that many CPFVs already have Tier 3 engines, and even without the rule, all boats will eventually convert to Tier 3 and even Tier 4 in the future. CARB's comparison assumes that CPFV emissions would not improve without this rule, which is not true.

These CPFVs are also not operating at or near a school, with children present, and not operating extensively near shore. Therefore, CARB is misleading on the health risk impacts from school buses versus CPFVs. An equivalent amount of emissions from a school bus will

have a more direct and significant risk impact on human receptors, especially children, compared to boat emitted at sea.

School bus upgrades have come at 100% taxpayer funded expense – is CARB offering to buy every owner a new boat? No, they are creating a mandate to take away or limit grant funds for upgrading existing vessels and buying new vessels.

Given that the Chair was appointed largely to ensure CARB policies advance social justice and equity, does the CARB Board and executive staff support such blatant and disingenuous propaganda to discredit these legitimate issues raised by stakeholders?

Does the Newsom Administration support using taxes and fees used to support state created and promoted propaganda against small business owners advocating for their survival and the survival of programs they support?

Should the Legislature conduct oversight of programs engaged in this behavior or impose rules to prevent this type of conduct?

Does CARB have any policies in place to prevent this type of conduct from occurring?"

Response 3195.27: See Response 1703.1 regarding emission comparisons between marine engines and school bus engines.

The comments related to taxpayer-funded school bus upgrades, claims that CARB documents that are not on the rulemaking record are propaganda, proposing legislative oversight of CARB programs, and CARB policies regarding conduct are outside the scope of the rulemaking and do not require a response. Please see the board hearing slides and the video transcripts for the board hearing meeting on November 19, 2021 for the comparison of emissions from a sportfishing vessel to a school bus.

Comment 3195.28: "CARB staff further made assertions that unregulated CPFVs would become the largest percentage of PM if unregulated. However, no CPFV owners have asked to be exempted from the regulation. In fact, CPFV owners have argued strenuously to be included in the regulation with commercial fishing vessels, as they have been historically, to reflect the similarity between the vessels, safety considerations, and economics of the industries. CARB staff obfuscate the true size of the CPFV fleet and emissions (covered elsewhere in this letter) and appear to ignore that the majority of inspected CPFVs are already Tier 2 or Tier 3. However, because CARB has not provided usable and transparent data in this instance, the industry is unable to even analyze the assertions made. On its face, it is hard to understand how 1,199 vessels under the proposed rule would reduce PM emissions by roughly 80% and end up with half of the PM emissions as 174 vessels. Regardless CPFVs are asking to be regulated with Commercial Fishing so emissions would be expected to fall at a similar rate.

Using CARB's own data (Figure VI-6 from the staff report), DPM emissions from commercial fish If included with commercial fishing under the CHC rule, CPFV emissions would be expected to see a similar >75% reduction from approximately 20 tpy to less than 5 tpy in 2038. At <5 tpy, CPFV would absolutely NOT emit greater than 50% of the DPM emissions compared to the rest of the CHC fleet as CARB has suggested. Yet again CARB has prepared

a completely unrealistic and outlandish analysis to try to prove a point instead of engaging in an honest dialogue on the proposed rule.”

Response 3195.28: See response to Comment 3195.15 regarding the classification and requirements for CPFVs.

Comment 3195.30: “The combination of inspected vessels with six-pack boats skews emission numbers and risk impacts from inspected vessels such that we cannot see the separate contribution of each vessel category. Beyond the fact that both offer fishing opportunities to the public, there are very few other similarities between inspected vessels and the six-pack boats. Further, since these boats are prevalent in different locations across the state at different population sizes/percentages, their inclusion in the data set also skews the contribution of inspected vessels in each air basin falsely makes it appear that there are more inspected vessels in the major health impact zones (South Coast and Bay Area). In addition, since all but a few of the diesel-powered six-pack boats, which are regulated by this rule, are part-time vessels, it does not make sense to regulate them at all under the rule.

SAC specifically requested data separately for inspected vessels and six-pack boats. It really is key to have all of this data separately as without it, stakeholders cannot adequately assess the emission/risk/health benefit contribution from the inspected vessels and whether the stringent regulation of those boats is reasonable in light of their separate and unique impacts. SAC’s data requests in this regard are detailed below:

SAC asked for separate emission numbers for inspected and six-pack vessels. CARB indicated that these data were not separated. We believe CARB should have the data to do these calculations separately, and that the calculations should be straightforward for them to complete.”

Response 3195.30: This comment did not result in any changes to the Regulation Order. CARB’s emission inventory, air quality dispersion modeling and therefore modeled cancer risk is accurately described in Appendix G to the Staff Report. The CHC health risk analysis modeling files, which include both PM2.5 concentrations and diesel PM cancer risk values, are available for download at the following website: <https://www.arb.ca.gov/CommercialHarborCraft-Health-Risk-Files>. The analysis demonstrated in the staff report establish the need of emission reductions across all CHC sectors. CARB does not maintain separate subcategories in the reporting database or emissions inventory for vessels in the CPFV sector. CARB’s CHC emissions inventory used for this rulemaking shows the relative contributions of each vessel sector in the Statewide CHC inventory. CARB’s Health Risk Analysis utilized the cumulative total of all CHC emissions in the regions analyzed. Further resolution by vessel subcategory is unavailable unless stakeholders or trade organizations hire consultants to complete their own regional emissions inventory analyses and vessel subcategory health risk analyses to support their claims of having little to no negative public health impact. See the Board-directed 15-day changes to the Regulation Order outlining a new compliance pathway and a new compliance timeline for all CPFV vessels.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Please also see Response 3195.15 regarding the classification and requirements for CPFVs, and Response to Comment 3195-3 in the Response to Comments on the Draft EA.

Comment 3195.37: "CARB Actively Ignored Available Vessel Logbook Information to Gather True Operational Data but Instead Relied on Incomplete and Insufficiently Representative AIS Data for Its Modeling and Risk Analysis.

When making the calculations for their inventory and health analysis, CARB used incorrect assumptions relative to CPFVs. According to CARB, they used AIS (Automatic Identification System) data to calculate what portion of vessel activity was occurring within 24 miles of the California coast. However, AIS is not required on vessels of less than 65 feet, unless they are operating in a Vessel Traffic Service (VTS) area. A majority of the CPFV fleet is less than 65 feet, and the two VTS areas in California are directly offshore of the Golden Gate and Los Angeles/Long Beach harbors, thus AIS is not required for the majority of the CPFV fleet. The CPFV fleets of San Francisco Bay Area and South Coast tend to spend more time fishing inshore than significant other portions of the CPFV fleet, such as in San Diego.

Because of this, any use of AIS data to show area of operation will bias the data towards a more inshore area of operation than actually occurs as a whole for the CPFV fleet. A more accurate method of determining area of operations of the CPFV fleet would be to use logbook data from the CDFW as we have repeatedly indicated to CARB. All CPFVs must submit daily logs of times and location they spent fishing. CARB should have used this information, rather than AIS data, for its modeling and risk analysis of CPFVs.

Much of the CPFV fleet from San Diego spends the majority of their time in the Mexican EEZ where AIS is not required on vessels of less than 150 tons, thus the AIS data is not usable. Most of the CPFV fleet that has AIS has only class B transponders, which are lower powered and less likely to be accurately received by shore stations. Relying on Marine Cadestre (Vessel Traffic information) for accurate locations of the CPFV fleet will not yield accurate results.

CARB Admittedly Relied on Survey Data It Acknowledged was Flawed from Which it Made Unjustified Assumptions to Support its Position

CARB staff also used a second method in determining area of operation of CPFVs. This method consisted of a survey that was required by operators of commercial vessels in California. Unfortunately, the public outreach for this effort was not very robust, and this resulted in an incomplete data set. Many of the boat owners did not fill out the survey or did not understand the questions being asked or how the data would be used. For example, when filling out reports, some owners were not clear that ONLY hours and fuel burned in California regulated waters were to be reported. Since there had been new requirements for hour meters that could not be shutoff, the owners (incorrectly) assumed that we were being asked for total hours of operation annually. CARB staff acknowledges this issue in Appendix H of the Staff Report, where they nevertheless decide to assume that ALL hours reported are from regulated waters. By not correcting this issue, the data are significantly biased towards showing higher emissions in regulated waters than there actually are.

Once again, CDFW logs are legal documents that show positions and time spent operating in certain geographical areas. One analysis of vessel logbook data, contemporaneously furnished as required to the CDFW, by the owner of a fairly typical overnight vessel (conducting trips of 1- 3 days duration) calculated over a five-year period that 16.28% of the vessel's operational time was spent in regulated waters, contrasted against the 83% of time assumed by CARB staff using faulty AIS and survey data for operational time conducted in regulated waters. Critically, operators are required to carefully track their areas and times of operation and to submit the logbook to CDFW, a California governmental agency, but in making operational assumptions, CARB, also a California governmental agency, consciously chose to ignore regulatorily required actual data in favor of inaccurate and deficient surrogate data, even though CARB recognizes and acknowledges the data was not reliable as a proxy. This owner's analysis can and should have been replicated by CARB in developing its rulemaking. By not using these data, CARB staff are not using the best available science in the assumptions for their analysis and likely overstated emissions by 5 times for 50% of the fleet."

Response 3195.37: See Response 3195.15 regarding the classification and requirements for CPFVs.

See Response to Comment 3195-5 and Comment 3195-6 in the Response to Comments on the Draft EA.

Comment 3195.56: "J. The CHC Rules are predicated on Health Benefits that are Disproportionately Isolated to Communities Where the Impact from CPFV Operations Are Minimal; Conversely the Impact of the Regulations Disproportionately Burdens CPFV Operations Where the Projected Benefits are Fractionally Attenuated

Has CARB assessed the fact that 50% of the inspected CPFVs are located in San Diego County, but that CARB's own analysis suggests only 7% of the health benefits occur in San Diego County. The rule therefore creates a disproportionate impact on this vessel category compared to its contributions, especially the limited contributions in environmental justice communities. Has CARB completed a detailed air modeling and risk assessment in San Diego County where the majority of the CPFVs reside and operate? If not, why not? Why did CARB ignore requests to use accurate logbook data that is available for every vessel? Given a boat owner has established that his vessel's operating times in regulated waters are overstated by 5 times by CARB's model and his data will be reflective of 50% of the fleet, does CARB plan to revisit requests to use logbook data that accurately reflect where vessels operate?"

Response 3195.56: See response to Comment 3195.15 regarding the classification and requirements for CPFVs. Also, Chapter II of the Staff Report describes the basis for this rulemaking, only one of which is direct health impacts to environmental justice communities. See Response to Comment 3195-6 in the Response to Comments on the Draft EA related to data used to calculate emissions, specifically addressing CDFW logbook data.

The logbook data could be considered in future inventories, if the data can be entered in a Graphic Interface System (GIS) similar to AIS, is available to CARB, and can be tied to the existing vessel categories reported to CARB and reflected in the inventory.

Comment 3195.58: “On behalf of CPFV's throughout the state of California, SAC and GGFA recommend the following modifications to the current CHC amendment: ... That diesel-powered six-pack boats be left out of this rule. Most of these boats are part-time operations with smaller engines and limited use. Their inclusion puts them at a serious financial disadvantage compared to their gasoline-powered counterparts. We believe there are roughly 20 diesel powered boats that operate full-time.”

Response 3195.58: See Response 3195.15 regarding the classification and requirements for CPFVs.

Comment 3283: “When the proposed regulations were released, I was expecting to find a place for wind and sailing vessels, a 5,000-year old technology. So I was very disappointed to see that sailing and wind are not included in the regulation as a zero-emission hybrid option. To be clear, the word “wind” does not exist in the regulation and that is disappointing and confusing, because the vessels in our state operated using wind as a hybrid, it would immediately reduce emissions from harbor craft by over 90 percent. So simply put, I'm asking CARB to include wind and sailing in the proposed regulations as a propulsion source and a zero-emission hybrid option.”

Response 3283: No change to the Regulation Order was made in response to this comment. CARB staff has included provisions for ZEAT and an ACE for fleet operators to utilize zero-emission technologies. The Regulation Order does not specify what technologies must be used. CARB staff are open to reviewing ZEAT Credit or ACE Plan applications utilizing wind power and sailing strategies from interested stakeholders. See Response 3139 regarding sailboats as Zero-Emission Capable Hybrid Vessels.

Comment 3292.1: “The local coastline runs from northwest to southeast, and the prevailing winds in our area are from northwest to southeast. So for the most part, our emissions should not reach the mainland once we make the brief transit out of the harbor and offshore. This shows the disingenuous nature of CARB's analogy concerning school buses. These vehicles operate within the communities they serve. Ours do not. And I really don't understand how your modeling shows that our emissions go that far inland when we operate offshore.

Response 3292.1: In response to concerns from the sportfishing industry and at the Board's direction, CARB staff made a 15-day change to the Regulation Order to provide a one-time, ten-year compliance extension pathway for CPFV. CARB staff also provides the below response to the comment concerning CPFV emissions.

CARB regulates emissions from CHC activity to 24 nautical miles from the California Coast. The CHC emissions inventory methodology is described in Appendix H of the ISOR. CARB staff does not agree with this analogy of CPFV activity that overlooks the near-shore CPFV emissions occurring within the 24 nautical mile boundary of RCW including in harbor during warm-up and emissions in transit to fishing grounds, in addition to the emissions that CPFV passengers are continuously exposed to during fishing trips. In addition, vessel owners or operators are eligible and apply for low-use exceptions if engines operate under certain annual operation hour threshold based on the engine tier level without repowering or retrofitting the engine.

Comment 3302.1: “Staff concluded that CPFVs operate 83 percent of the time in regulated waters. My vessel is representative of the San Diego fleet and according to my log book data, we operate 16 percent of the time in regulated waters.”

Response 3302.1: See Response 3195.15 regarding the classification and requirements for CPFVs.

Comment 3314.2: “Your quote as to how an engine is operating is wrong. Vessels do not operate at 100 percent power 100 percent of the time. Full-power operation is maybe 10 to 20 percent of the time, which is not what your comparison represents.”

Response 3314.2: No change was made to the Regulation Order in response to this comment. CARB staff is aware of the engine applications, duty cycles, and average load factors used. The complete CHC Emissions Inventory methodology is outlined in Appendix H of the ISOR. The average load factor used in analyses for CPFV main engines is 0.29.

Comment 3352.1: “The first thing I want to say is you're saying that one charter boat emits as much pollutants as 162 school buses. That's preposterous. I mean, first of all, you're saying that an 800 horsepower motor running a hundred percent against school buses. I have 400 horsepower power and I run at less than 50 percent. And I run most of my time outside of State waters, and most of that time is either drifting or idling.”

Response 3352.1: See response to Comment 3314.2 regarding emissions inventory methodology. Please see the board hearing slides and the video transcripts for the board hearing meeting on November 19, 2021 for the comparison of emissions from a sportfishing vessel to a school bus.

Comment 3377.6: *“Accurate Vessel Inventory*

Under existing harbor craft regulations, towing vessel operators are required to report to CARB the number of vessels they operate in California waters. Rather than relying on this reporting to determine the size of the towing vessel population, CARB used a USCG database that provides information on vessel ownership and regulatory status, but not area of operation. This is an inaccurate representation of the number of vessels operating in California regulated waters because a vessel can be registered at a California port where a company is headquartered, but not necessarily transits consistently through California waters.

Throughout its three years of engagement, AWO has repeatedly pointed out that the U.S. Coast Guard database CARB used to create its vessel inventory is designed to track ownership of a vessel and not where it operates. Despite this important clarification, CARB continues to use homeport information which overestimates towing vessel operation in California waters. This mistake has led the agency to overestimate the number of unreported vessels, the population of towing vessels operating in California, and their cumulative impact on air quality.

In order to demonstrate these inaccuracies, AWO contracted with Ramboll⁴, a third-party engineering consulting firm, to conduct an independent assessment of the number of towing vessels operating in California and the likely impact of emissions from those vessels. Using Automatic Identification System (AIS) data for 2019⁵, Ramboll tracked the movement of every

towing vessel operating within California waters during that year. The AIS data affirms that CARB has significantly overcounted the size of California's towing vessel fleet. Ramboll found that only 200 towing vessels operated within 100 nautical miles of the California coast, nearly 30 vessels fewer than CARB estimated to be working in California. The CARB model also assumes that non-reporting vessels operated the same number of hours as reporting vessels. Using the AIS data, Ramboll was able to determine the number of hours the towing vessels operating in California waters were moving, which is more a reliable predictor of total engine hours and therefore engine emissions. AWO was later informed by CARB that data provided by staff was improperly labeled. Therefore, this audit is inaccurate in our view.

Despite this, AWO stands by its past comments stating that it is inappropriate to use the U.S. Coast Guard database to identify vessels operating in California and that emissions from vessels that have not reported their hours are only a fraction of the scaling factor CARB has used in their emission analysis.

This new rule is based on an inaccurate vessel inventory and overinflated emissions numbers. We need to pass a rule that is based on an accurate reflection of the industry and its impact on California."

Response 3377.6: No change was made to the Regulation Order in response to this comment. The CHC Emissions Inventory methodology is outlined in a detailed manner in Appendix H of the ISOR. See Response 3118.13 for more detail regarding the use of AIS data and other sources for the emissions inventory.

Comment 3392.5: CARB has stated that there is a significant under-reporting of hours among towing vessels. From the start of this process CARB has grossed up towing vessel hours by between 29% and 36%. The original basis for CARB Staff's actions was information gathered from an USCG database. When AWO provided evidence that demonstrated the database was an inaccurate and inappropriate tool for that purpose, CARB staff claimed they no longer relied on it. But they continue to inflate the numbers and have offered no explanation beyond "other sources" and "they talked with industry". Further, they have tried to write off AWO's input claiming we used AIS data and the fact that some vessels do not carry AIS. While true, they neglected to point out that we provided evidence that AIS identified over 92% of towing vessels that "could" have operated in California waters, and of those that don't carry AIS, are smaller vessels, most less than 26' long. AWO provided numbers that including the vessels without AIS that "may" have operated in California AWO demonstrated that the vessel population, and corresponding emissions were inflated in each category of vessels. Specifically,

- ATBs by 36%. Only 14 ATBs, not the 19 in CARBs data called in both 2019 and 2021.
- Escort Tugs by 15%. Only 55 Ship Assist and Escort tugs, not the 63 in CARBS data operated in the referenced years.
- Tugboat-push/tow by 70%. We found 143 tugboat-push tow operated, 124 identified with AIS. CARB estimates showed nearly the same number of vessels but attributed over 1.7 times (70%) more operating hours, and thus 70% emissions. The hour estimates by AWO were supported by detailed AIS data, CARBs estimates were not based on any supporting data.

Response 3392.5: No changes to the Regulation Order were made in response to this comment. CARB's CHC Emissions Inventory methodology for this rulemaking is described in Appendix H of the ISOR.

A full response on the use of USCG data, along with consideration of activity, and issues related to AIS data as the basis for emission inventory are covered in Responses 3118.13, 3118.17 et al., and 3121.37.

Also see Master Response 3 in the Response to Comments on the Draft EA related to accuracy of assumptions and estimates.

q. Health Analysis

Comment 2588.11: "Staff did not use the correct operating parameters for the San Diego fleet when building their model showing CPFV emissions statewide. San Diego accounts for a very significant portion (perhaps even the majority) of CPFV operations in California. Without logbook data for the entire fleet this number is impossible to quantify. As a government agency, CARB has access to this data, but elected not to use it.

In their cost/benefit analysis, CARB staff relied on faulty data from AIS and the CHC reporting form. Because they did not use the most robust data set available, the conclusions reached by staff are flawed. The CPFV fleet, as a whole, spends less time operating and emitting in regulated waters than is assumed in the analysis. Since not as many emissions occur in the regulated waters as assumed, the health cost and associated monetary savings to the California population from the CPFV fleet will be significantly lower than concluded in the analysis. Because unrealistic figures were used in the economic analysis of the CPFV industry, the economic costs to the industry, associated businesses and waterfront community will be much higher than the cost/benefit analysis shows. In conclusion, the net result of this proposed rule is likely to have a high economic cost, a loss of access to the ocean for most Californians, and have a negligible impact on the public health of coastal communities."

Response 2588.11: No change was made to the Regulation Order in response to this comment. The CHC Emissions Inventory methodology is outlined in a detailed manner in Appendix H of the ISOR.

CARB's 2021 Emissions Inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. The updated inventory methodology used data reported between 2010 and 2019 to project future baseline and control emission scenarios for each vessel type, engine type (i.e., main engine or auxiliary engine), and air pollutant. The methodology accounts for the potential for errors in operator-reported data by considering reported cumulative non-resettable hour meter data, reported annual activity (hours and fuel), and measured Automatic Information System (AIS) vessel data to more accurately determine the fraction of emissions from vessels using RCW. For full details of the 2021 Emissions Inventory for CHC, see Appendix H of the ISOR.

The CDFW logbooks referenced by this commenter do not provide enough data for CARB to calculate operating time within 24 nm across the fleet. This commenter attached the

logbooks for their vessel, but without firsthand knowledge, and a clear documentation of daily engine operating records of how the vessel is typically operated on different types of trips, calculating runtime for each engine would not be possible. The commenter and other vessel operators have not provided daily trip-level information that is sufficient for CARB to calculate the geographic distribution of emissions from the fleet using CDFW logbook data.

Please also see Responses to Comment 2588-4, Comment 2588-5, and Master Response 3 in the Response to Comments on the Draft EA.

Comment 3118.14: "Given this inflation of the towing vessel fleet size and operating hours, AWO expects that CARB's assessment of harbor craft emissions and their health impact is similarly skewed. Ramboll's estimates of emissions based on accurate fleet size and operating hours data lend credence to AWO's concern that CARB's estimates are overstated.

AWO asked Ramboll to review and comment on the Health Study section of the CARB rulemaking packet. Based on this assessment, Ramboll raised serious questions about the methodology CARB used both in its assessment of cumulative harbor craft emissions as well the resulting health effects. Most concerning is Ramboll's observation that CARB has made no apparent effort to validate its air quality model with verifiable, real-world results. Ramboll conducted a preliminary analysis to validate the agency's harbor craft-related exposure estimates by comparing CARB-modeled air concentrations at receptor points near Long Beach, Anaheim, Pico Rivera, and Los Angeles with the PM_{2.5} concentrations measured at the sampling stations installed at these locations. Because the sampling stations capture emissions from all nearby sources, CARB's modeled concentrations specifically for harbor craft would be expected to be within the range of the total measured emissions or, more likely, lower. Below is the table of results from this exercise, extracted from the Ramboll report.

[See Appendix B for Table 6 provided in Comment #3118.14]

The second column above shows the average annual PM_{2.5} concentrations measured at the sampling stations listed on the left. Again, these figures show estimated PM concentrations collected from all sources in the area, including cars and trucks, rail and harbor craft as well as other sources. They also reflect locations near the shoreline that are most likely to be impacted by harbor craft emissions. The four columns on the right show CARB's modeled concentrations calculated at four locations nearest to each sampling station. As highlighted in the table, Ramboll found from this preliminary check of the data that CARB's modeled estimates are up to 4 times higher than actual measured concentrations from all sources captured at sampling stations in the same general area. It is not plausible that emissions from harbor craft alone would be higher than the emissions captured in these areas from all possible sources. This raises serious questions about the accuracy of CARB's model and what, if any, efforts CARB has made to validate it.

Ramboll and AWO made numerous requests for information from CARB staff that would help us understand the methodology the agency used to determine health impacts associated with harbor craft emissions. CARB staff were unable or unwilling to provide much of the necessary information, which has forced Ramboll to make more generalized observations about CARB's approach. Those observations are offered in detail in Section 2.2 of the

attached report, but the essence is that: (1) there is enormous uncertainty in the health effects data that CARB has presented, calling into question the purported benefits of the proposed rulemaking; and (2) CARB has applied health effects analyses in an unconventional way and failed to report its findings in a manner that transparently acknowledges the lack of certainty inherent in those findings.

What we can say with certainty is that CARB’s assessment of the health risks from CHC emissions is overstated, at minimum by the agency’s overestimation of the vessel inventory and emissions, but more likely to a much greater extent due to the unaddressed weaknesses in the modeling itself. CARB’s overstating the emissions from harbor craft is magnified in each step of the model, with each highly conservative assumption or input that is propagated throughout both risk assessments. Based on the comparison of the model output with actual PM levels at monitoring sites, it seems clear that errors in the model are overestimating the actual exposures to communities along the shoreline, and thus overestimating any potential benefits of the proposed rules, by a significant margin. This is an unacceptably weak foundation for such a consequential rulemaking.”

Response 3118.14: CARB staff made no changes based on the received comment.

Please see the Response 3118.6 regarding CARB staff’s responses to comments submitted by AWO, regarding the towing vessel inventory and HRA.

Please see Response to Comment 3392.6 which addresses the availability of data files.

CARB staff has communicated with AWO and Ramboll in an email on Jan. 14, 2022 to address the concerns above. The email highlights, in yellow, the modeled PM2.5 concentrations which are 5 to 6 orders of magnitude lower than the ambient concentrations reported in AWO’s comment letter.

PM2.5 (mg /m ³) annual average	Average of all POCs daily	Closest Receptors (Modeled PM2.5 mg/m ³ ,Receptor #), Original				Closest Receptors (Modeled PM2.5 mg/m ³ ,Receptor #) Newly Calculated by CARB				Ratio of Ambient (All Source)* to Modeled Concentrations (CHC)
Long Beach (North)	10.81	34.82 (1856)	35.68 (1857)	38.30 (1858)	34.15 (1855)	3.72E-05 (1856)	3.82E-05 (1857)	4.10E-05 (1858)	3.65E-05 (1855)	2.8E+05
Long Beach (South)	12.82	51.57 (1874)	48.44 (1876)	59.88 (1900)	58.13 (1901)	5.52E-05 (1874)	5.18E-05 (1876)	6.40E-05 (1900)	6.22E-05 (1901)	2.2E+05
Long Beach-Route 710 Near Road	13.87	24.01 (1825)	24.80 (1826)	22.29 (1827)	22.35 (1824)	2.57E-05 (1825)	2.65E-05 (1826)	2.38E-05 (1827)	2.39E-05 (1824)	5.6E+05
Anaheim	11.05	15.30 (2602)	14.34 (2604)	16.13 (2601)	14.17 (2588)	1.64E-05 (2602)	1.53E-05 (2604)	1.73E-05 (2601)	1.52E-05 (2588)	6.9E+05
Compton	13.24	18.05 (1683)	18.41 (1677)	18.96 (1685)	18.03 (1684)	1.93E-05 (1683)	1.97E-05 (1677)	2.03E-05 (1685)	1.93E-05 (1684)	6.7E+05
Pico Rivera#2	12.49	8.41 (1458)	8.55 (1459)	9.04 (1457)	9.09 (1467)	9.00E-06 (1458)	9.15E-06 (1459)	9.66E-06 (1457)	9.72E-06 (1467)	1.3E+06
Los Angeles-North Main Street	11.69	7.28 (530)	7.22 (491)			7.78E-06 (530)	7.72E-06 (491)			1.5E+06

*Using values reported in comment letter. If units were intended to be ug/m³ rather than mg/m³ as reported, these values would be 3 orders of magnitude lower.

The modeled concentrations in PM2.5 that were used for the health benefit valuation (only emissions and health benefits within the South Coast) were posted on the CHC website.⁵⁴

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3118.18 & 3121.12 & 3377.9: "CalPuff Modeling

The CalPuff modeling conducted in support of the Proposed Amendments to the CHC Rulemaking involve a number of model inputs and assumptions as outlined in Appendix G. Ramboll reviewed the modelling methodology as well as supporting documentation provided by CARB.

A missing element of the modeling was any validation of the key model inputs as well as the model results. Because of the complex nature of the modeling, including a number of assumptions regarding the emissions inventory, spatial and temporal allocation of emissions, complex terrain and meteorology, it is paramount that CARB validate to the extent possible the model inputs and results.

With regards to model inputs, at the very least CARB should verify that the meteorological estimates used in the model compare to actual measured estimates from a relevant meteorological station. In addition, CARB used a single year of meteorological data and it would also be important to consider using more than one year in order to capture any variability in meteorological parameters that tend to vary from year to year.

With regards to model results, one important way to validate results includes comparing modeled results with measured values at monitor locations at or near the modeled receptor points. While we understand that the CARB is only considering contributions from CHCs in the form of diesel particulate matter, the modeling is used to estimate exposures to diesel particulate matter and PM2.5. We also understand that ambient monitors will be measuring PM2.5 from all sources. Therefore, we expect that modeled concentrations would be within the range of measured estimates or lower.

Ramboll conducted a check of how modeled PM concentrations compare to measured PM2.5 concentrations for the South Coast Air Basin. Table 6 shows the results of the comparison between measured concentrations at monitoring sites in the South Coast Air Basin and nearby receptors.

As shown in Table 6, the results from this preliminary check of the data show that the modeled estimates are overestimating exposures as these estimates are up to 4 times higher than actual measured concentrations of PM2.5 particularly in the most impacted regions (i.e., near the shoreline). Inland modeled estimates (which are expected to be less impacted by CHC emission) are closer to the measured concentrations although still exceed these concentrations for some receptors. This indicates that overall the modeled estimates are overestimating exposures. CARB should similarly verify the results for the Bay Area Air Basin.

⁵⁴ CARB, Commercial Harbor Craft – Health Risk Files, <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

An additional source of uncertainty is associated with scaling the concentrations for future years based on changes in emissions. Because the concentrations are not only based on the changes in emissions, but other key factors including meteorology, this introduces a significant amount of uncertainty, making the validation of model estimates even more critical. Also, because we believe that emissions are overstated this will contribute to even more uncertain exposure estimates based on simply scaling.”

[See Appendix B for Table 6 provided in Comment #3118.18]

Response 3118.18 et al.: CARB staff made no changes based on the received comment. Please see the Response 3118.6 regarding the health risk analyses methodology and uncertainty and Response 3118.14 regarding Ramboll’s report and comparison to CARB’s modeled concentrations. Please see Response 3118.13 and 3118.17 et al. regarding vessel population and emissions inventory.

Prognostic meteorological data was used as input into CalPUFF. The decision to use prognostic data was based on the lack of National Weather Service surface and upper air station coverage over the large meteorological domains used to model. The domains include the South Coast and Bay Area air basins and 24 nautical miles of ocean off the coastline of those air basins. Staff is aware that three years of prognostic data is preferred. However, due to the large meteorological domains for the modeled air basins (Bay Area and South Coast) and the long processing times for the development of prognostic data, only one year of prognostic data was generated.

Staff is aware there is uncertainty in scaling concentrations for future years based on changes in emissions, and that changes in meteorological conditions may contribute to an increase or decrease of those projected concentrations in future years. However, for the purpose of comparison between a base year and a projected year and considering meteorological conditions in future years is an unknown no matter what meteorological data is used, staff believes scaling concentrations is acceptable.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3118.19 & 3121.13 & 3377.10: Cancer Health Risk Assessment

The cancer risk assessment also relies on a number data inputs and assumptions, starting with the estimates from the CalPuff modeling. Many of the inputs and assumptions are considerably conservative as they are meant to be health protective and are screening-level analyses. It is important to note that screening level analyses are often followed by more targeted analyses with refined parameters that are more site-specific and/or based on more realistic parameters in order to yield more realistic risk results. Importantly, the numerous levels of conservativeness in screening level analyses result in risk values that are often highly overestimated and do not necessarily reflect actual risks.

One key data input includes the exposure estimates, which are based on the CalPuff model inputs and a number of additional key assumptions. As noted above, based on Ramboll’s check of the modeled DPM estimates, it is likely that these estimates are overestimating exposures, both due to overestimated emissions (see Section 1) contributing to overestimates of about least about 20-60%, in addition model assumptions that result in

overestimates compared to measured estimates by as much as a factor of 4 (see comments above) at some receptor locations.

Exposure estimates are also based on updated methodology that also increases the risk estimates because of the application of high (95/80%) breathing rates and multiplicative factors for greater susceptibility in children. In addition, the risk assessment includes several conservative assumptions for estimating exposures including exposures across a residence time of 70 years⁴ and assuming a person is home 24 hours a day over those 70 years. All of these conservative assumptions compound to generate highly inflated risks.

Another key input for the risk assessment is the use of a cancer potency factor (CPF). CARB relied on the estimate developed by OEHHA of $1.1 \text{ (mg/kg-day)}^{-1}$ or 3×10^{-4} per $\mu\text{g/m}^3$. This cancer potency value, which represents a 95% upper confidence interval of the lifetime risk, is dated and overly conservative compared to more recent evaluations of the literature on which the cancer potency is based.

At the time of the development of the cancer potency EPA deemed the evidence to be too uncertain to use for cancer risk assessment (US EPA 1994). An HEI study (HEI 1995) found similar limitations associated with the studies that were the basis of the OEHHA value. These limitations included (1) questions about the quality and specificity of the exposure assessments for diesel exhaust, (2) a lack of quantitative estimates of exposure to allow derivation of an exposure–response function, and (3) lack of adequate data to account quantitatively for individual other factors that might also be associated with lung cancer, such as smoking. In 2002, EPA again concluded that data were too uncertain for developing a cancer potency, but using more qualitative methods determined the risk to be in the range of 10^{-5} to 10^{-3} . Therefore, the risk could potentially be about 300 times lower than the OEHHA value.

Another important issue in extrapolating results from older epidemiology studies, as OEHHA did, is that diesel exhaust exposure in these studies is based on diesel exhaust composition that is very different compared to more contemporary diesel exhaust, and also quite different from marine vessel emissions (as these studies evaluated exposures in railroad workers and truck drivers). Specifically, because of the long latency period for lung cancer, epidemiology studies need to examine workers whose exposures started more than 20 years earlier. These particular studies are based on exposures from the 1950s and 1960s. However, the US EPA and CARB have progressively tightened standards for particulate emissions from diesel engines, including marine engines, resulting in the development of new technology diesel engines with significantly lower emissions and also likely different composition. Because these changes have resulted in not only quantitative reduction in mass emitted, but have also resulted in differences in the composition with respect to size and chemicals associated with the exhaust (e.g., Hesterberg et al. 20118), the epidemiology studies based on old generation engines may not be applicable to current emission conditions.

Even if the epidemiology data were deemed robust enough for use in quantifying the cancer risks of DPM, the uncertainty suggests that cancer risks could be over 100 fold lower than estimates by CARB, which would bring the cancer risks into an acceptable range by US EPA and California standards (i.e., 10^{-6} to 10^{-4}) under the current regulations, without the need for application of the proposed regulations.

At a minimum, CARB should provide a more detailed discussion of the uncertainties noted in these comments and the impact on the estimated risks, which we note are likely highly inflated. The cumulative impact of application of multiple conservative assumptions needs to be acknowledged.

The amount of uncertainty associated with this analysis is very large and propagated across all the steps in the risk assessment process including 1) emissions estimation, 2) modeling and scaling of PM concentrations (which rely on emission inputs), 3) deriving PM from diesel PM, 4) assumptions regarding conversion of NO_x to PM, 5) application of health functions from epidemiology studies, and 6) estimation of baseline health statistics and population statistics for future years. The magnitude of the uncertainty and the impact on the direction of bias has not been evaluated by the CARB, but our analysis, based on available data, suggest that the magnitude is quite large (and larger than expressed by the 95% confidence intervals provided by CARB) and most likely are overstating the health benefits of the proposed amendments.

In light of the significant amount of uncertainty in the health analysis, we strongly suggest that CARB present the findings so that they are more transparent and in a way that acknowledges the level of uncertainty, as well as amount of confidence that can be placed on the results. For example, we don't think it is appropriate to present the combined results for the health analysis based on modeled data and those based on the IPT methodology, because the IPT results would tend to be much more uncertain and less reliable. Also, instead of presenting a total number of deaths as the sum across air basins and years, CARB should present results as a range on potential annual impacts for each air basin, separately. This again, with the acknowledgement that year to year there is uncertainty and the numbers could be more or less than estimated depending on many different model assumptions at every step in the risk assessment process.

Some of the key limitations and sources of uncertainty of these two methodologies for estimating the potential health impacts from the Proposed Amendments are discussed below."

Response 3118.19 et al.: CARB staff made no changes based on the received comment. Please see Response 3118.13 and 3118.17 et al. regarding vessel population and emissions inventory. Please see Response 3118.18 et al. regarding the scaling of concentrations. Please see Response 3118.6 regarding the health risk analyses methodology and uncertainty, Response 3118.14 regarding Ramboll's report and comparison to CARB's modeled concentrations, and Response 3118.20 et al. regarding the incidence per ton (IPT) methodology and the presentation of mortality and illness results.

The risk analysis for the 2022 Amendments to the CHC Regulation was conducted using methodologies from the OEHHA Guidance Manual,⁵⁵ as referenced in the CHC ISOR Appendix G – Healthy Analyses.

Staff evaluated potential cancer risk for a 70-year population-wide exposure, which is used for sources with large emission footprints (e.g., CHC operations, ports, refineries, rail yards, etc.). A 70-year population-wide exposure is critical to provide an illustration of the potential impacts CHC may have on a regional level. This scenario assumes that a population will live in the impacted zone for 70 years, which is an assumed lifetime of a person and is health-protective for populations that stay within the emissions footprint of a source.

For this exposure scenario, staff applied the CARB and the California Air Pollution Control Officers Association (CAPCOA) risk management policy (RMP) for inhalation-based cancer risk. The policy recommends using the 95th percentile breathing rates for age bins less than 2 years old and the 80th percentile breathing rates for age bins greater than or equal to 2 years old. Because people have different breathing rates and different levels of sensitivity to carcinogens at different ages, cancer risk is calculated by age ranges or bins. The bins allow age-specific variates to be applied. Exposure variates include breathing rates, age sensitive factors, fraction of time at home, and exposure duration.

Staff is aware there may be uncertainty associated with the CPF used. When the SRP identified DPM as a TAC, the panel members endorsed a range of inhalation CPF (1.3×10^{-4} to 2.4×10^3 ($\mu\text{g}/\text{m}^3$)⁻¹) and a risk factor of 3×10^{-4} ($\mu\text{g}/\text{m}^3$)⁻¹, as a reasonable estimate of the unit risk. From the unit risk factor an inhalation CPF of 1.1 (mg/kg-day)⁻¹ was calculated by OEHHA, which is used in this HRA. There are many epidemiological studies that support the finding that diesel exhaust exposure elevates relative risk for lung cancer. However, the quantification of each uncertainty applied in the estimate of cancer potency is very difficult and can be itself uncertain.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3118.20 & 3121.14 & 3377.11: “2.2 Regional PM2.5 Mortality and Illness Analysis for California Air Basins

CARB used two different methods to estimate the impacts of the Proposed Amendments to the CHC Regulation on mortality and other health effects (hospital admissions for cardiovascular and respiratory diseases and emergency department visits for asthma). The first method relies on the modeled estimates for the two air basins (San Francisco Bay and South Coast) and the second method is a reduced form analysis that is applied to other air basins as well as to impacts from reductions in NOx.

While the CARB health analysis is based on standard methodology used by EPA to calculate health impacts, we were not able to check the results based on the data provided by CARB as many of the model inputs were missing. Also, even though the methods appear to be

⁵⁵ Office of Environmental Health Hazard Assessment, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, February 2015, last accessed June 3, 2021, <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.

applied correctly, given what we were provided for review, the approach taken by CARB is unconventional. First, CARB is using two different methods to calculate health impacts, one based on modeled results and a second based on a reduced-form method with large simplifying assumptions. Both methods are subject to large uncertainties, but the reduced form method has significantly more uncertainty.

Also, the way the CARB approaches the health analysis is also significantly different from the way EPA and others have conducted similar analyses (i.e., using BenMAP). CARB essentially is computing effects based on changes in PM_{2.5} modeled estimates (or PM emission reductions) for each year starting in 2023 and up to 2038 between the current regulations and the proposed amendments. The impacts are summed across air basins for each year, and then summed across all years. To our knowledge, this type of cumulative assessment of health benefits across a long time period in the future has not been conducted previously using the methods CARB is using. We welcome other examples where this has been done.

The implications are that these impacts are cumulative over time. In addition, the impacts actually increase over the years (presumably as the difference in emissions or concentrations increase between current and proposed regulations).

The amount of uncertainty associated with this analysis is very large and propagated across all the steps in the risk assessment process including 1) emissions estimation, 2) modeling and scaling of PM concentrations (which rely on emission inputs), 3) deriving PM from diesel PM, 4) assumptions regarding conversion of NO_x to PM, 5) application of health functions from epidemiology studies, and 6) estimation of baseline health statistics and population statistics for future years. The magnitude of the uncertainty and the impact on the direction of bias has not been evaluated by the CARB, but our analysis, based on available data, suggest that the magnitude is quite large (and larger than expressed by the 95% confidence intervals provided by CARB) and most likely are overstating the health benefits of the proposed amendments.

In light of the significant amount of uncertainty in the health analysis, we strongly suggest that CARB present the findings so that they are more transparent and in a way that acknowledges the level of uncertainty, as well as amount of confidence that can be placed on the results. For example, we don't think it is appropriate to present the combined results for the health analysis based on modeled data and those based on the IPT methodology, because the IPT results would tend to be much more uncertain and less reliable. Also, instead of presenting a total number of deaths as the sum across air basins and years, CARB should present results as a range on potential annual impacts for each air basin, separately. This again, with the acknowledgement that year to year there is uncertainty and the numbers could be more or less than estimated depending on many different model assumptions at every step in the risk assessment process.

Some of the key limitations and sources of uncertainty of these two methodologies for estimating the potential health impacts from the Proposed Amendments are discussed below.

Analysis for the San Francisco Bay and South Coast

As is the case for the cancer health risk assessment, the PM mortality and illness analysis relies on a number of model inputs and assumptions, many that are associated with significant uncertainty that tends to overstate the risks.

In interpreting the mortality and illness results, it is important to consider that the health impacts are based on a single population-based epidemiological study that infer statistical associations between health effects and air pollution exposures, but that cannot provide definite evidence of a cause and effect. This is because these studies have important limitations that preclude definite conclusions regarding a causal link between PM and mortality or illness, including uncertainty regarding the exposure estimates, the potential role of other pollutants or factors that might explain the effects, and evidence that there is likely a threshold below which health impacts are unlikely. In addition, the components of PM that may be associated with adverse health effects are yet unknown, but the analyses assume that all PM is equally toxic, making it a very conservative analysis.

The epidemiological studies that form the basis of the health study, including the mortality study by Krewski et al. (2009) rely on data from central-site monitors to estimate personal exposures. This results in exposure measurement error because central-site monitors may not accurately capture population mobility, the uneven distribution of PM exposure attributable to local sources, pollution patterns that can be affected by terrain features and weather, and daily variations in PM concentrations or composition that may differ from variations experienced by individuals. These factors can bias the results of an epidemiology analysis in either direction. The direction and magnitude of the bias depends on the type of measurement error. For PM_{2.5}, however, because of the spatial variability of air pollutant concentrations the bias is likely to result in effects being overestimated (e.g., Goldman et al., 2011 Rhomberg et al.)

The bias associated with confounding effects is particularly difficult to address in epidemiology studies because it is challenging to account for all potential confounding factors. A confounder is a factor that is associated with both an exposure and an outcome, and may make it appear that the exposure is associated with (or caused) the outcome. In PM mortality studies there is evidence that co-pollutants can confound the PM mortality association, especially because many of the pollutants are strongly correlated, and disentangling the effects of any single pollutant (if any) is difficult. Even if potential confounders are accounted for in studies, there may still be issues of how well the confounding variables are measured and controlled for. For example, in the study by Krewski et al. (2009), which is used by CARB for the mortality estimates, data on potential confounders such as smoking and body mass index were determined at the beginning of the study for all participants, but were not re-evaluated over the follow up study period. Changes in these variables over time could alter confounding effects. The issue of confounding relates to both the assumption of causality, where another factor may actually be the causal agent, and to the magnitude of the association, where a co factor may account for some of the observed risk. In either case, ignoring the effects of confounding results in overstated effects estimates.

Another source of uncertainty is the assumption of a log-linear response between exposure and health effects, without consideration for a threshold below which effects may not be measurable. The issue of a threshold for PM_{2.5} is highly debated and can have significant implications for health impacts analyses as it requires consideration of current air pollution levels and calculating effects only for areas that exceed threshold levels. Without consideration of a threshold, effects of any change in air pollution below or above the threshold are assumed to impact health. Interestingly, although EPA traditionally does not consider thresholds in its cost-benefit analyses, the NAAQS itself is a health-based threshold level that EPA has developed based on evaluating the most current evidence of health effects. Most epidemiological studies do not indicate that a threshold exists, but these studies often do not have the statistical power to detect thresholds. Some studies that have employed different statistical methods have shown evidence of a threshold for PM-mortality effects. For example, Abrahamowicz et al. (2003) found evidence for a PM_{2.5} threshold at about 16 g/m³ below which mortality effects were not observed. Considering a threshold for PM effects would mean that effects would occur only when threshold levels of PM is exceeded.

Sensitivity analyses are often warranted using different health functions from different studies in order to evaluate the potential variability and/or uncertainty in health estimates. For example, some epidemiological studies have reported no mortality impacts from PM_{2.5} exposures (Beelen et al., 2009; Enstrom, 2005; Lipfert et al., 2006). This means that if the BenMAP analyses used different concentration-response functions, the actual impacts may be very different from those reported in this analysis and could include a zero effect.

One additional important uncertainty stems from the assumption that all PM_{2.5}, regardless of composition, is equally potent in causing health effects such as mortality. This is important because PM_{2.5} varies significantly in composition depending on the source, and this is particularly important because the composition of particulate matter from diesel has also changed over time as a function of changes in both diesel fuel composition as well as the use of emission controls. Several reviews have evaluated the scientific evidence of health effects from specific particulate components (e.g., Rohr and Wyzga 2012; Lippmann and Chen, 2009; Kelly and Fussell, 2007). These reviews indicate that the evidence is strongest for combustion-derived components of PM including elemental carbon (EC), organic carbon (OC) and various metals (e.g., nickel and vanadium), however, there is still no definitive data that points to any particular component of PM as being more toxic than other components. EPA also stated that results from various studies have shown the importance of considering particle size, composition, and particle source in determining the health impacts of PM (US EPA, 2009). Further, EPA (2009) found that studies have reported that particles from industrial sources and from coal combustion appear to be the most significant contributors to PM-related mortality, consistent with the findings by Rohr and Wyzga (2012) and others. Therefore, by not considering the relative toxicity of PM components, BenMAP analyses are likely to be conservative.

Analysis Using the IPT methodology for Other Air Basins (and NO_x)

In addition to the analysis conducted on modeled PM_{2.5}, CARB applied a reduced-form methodology (IPT) to estimate additional health impacts for other air basins and from PM_{2.5}

derived from NO_x emissions. These reduced-form analyses involve important simplifying assumptions that can greatly affect the reliability of the estimated health impacts.

The uncertainties described in the previous section also apply to the development of the IPT factors that are used to estimate the impacts for other air basins. Additional uncertainty is introduced when applying these IPT factors to the estimated emissions for this rulemaking. The IPT factors are based on a specific time period, and therefore important variability due to meteorological changes and or spatial differences are not accounted for. Most of these uncertainties were not discussed or considered by CARB. Importantly, a large majority of the assumptions and uncertainties likely result in overestimated benefits, particularly when considering the compounding effects of the uncertainties in the various modeling inputs, starting with the emissions estimates, on the final calculation.

As noted previously, we don't believe it is appropriate for CARB to combine the results from this analysis with the analysis for the two air basins, for which modeled estimates are available. In addition, the estimated range of annual impacts for each air basin should be reported instead of summing the cumulative results across years.

2.3 Conclusions

The health risk assessments conducted by CARB are subject to a significant number of uncertainties that are propagated through the risk assessment steps and that we have shown to overestimate the health impacts. We first show that emissions estimates are inflated (see Section 1) and these estimates are inputs to the CalPuff modeling used to estimate exposures and risks for the Bay Area and South Coast Air Basins. We also note that CARB did not validate the model estimate against measured levels of PM_{2.5}. Our preliminary analysis indicates that the modeled estimates are overestimating the measured levels for receptors near monitoring stations, particularly in highly impacted areas. Lastly, we highlight many of the risk assessment model assumptions that will also contribute to overstated health impacts in both the cancer risk assessment and the mortality and illness assessment.

Specifically, in the cancer risk assessment the use of highly conservative exposure assumptions (e.g., high breathing rates, 70 years of exposures 24 hours a day), application of sensitivity factors, and use of a highly conservative cancer slope factor all add up to highly inflated cancer risks. Similarly, in the mortality and illness analysis, risks are also likely to be overstated because of assumptions related to the choice of epidemiological study as the basis of the analysis, as well as the assumptions regarding the year to year changes in emissions across the air basins. Importantly, because the two methods used by CARB are associated with significantly different amount of uncertainty, the mortality and illness results should be presented as annual effects, and shown separately by air basin and by methodology, noting that results using the IPT approach will be more uncertain than those based on modeled results.

Overall, CARB needs to provide a more robust validation of modeled assumptions, a more thorough discussion of the underlying uncertainties and impact on the results, and a more transparent representation of the study results."

Response 3118.20 et al.: CARB staff made no changes based on the received comment.

Please see Response 3118.19 et al. regarding the health risk analysis conducted by CARB.

Replication of results

On September 21, 2021, CARB provided the inputs to the health analysis on the CHC website.

CARB Health Analysis Methodology and similarities to EPA Approach

The health benefits analysis that CARB performed for the South Coast and San Francisco Bay Area air basins is a standard approach for air pollution health analyses and is based on the methodology used in BenMAP software. The analysis uses modeled PM_{2.5} concentrations and concentration-response (CR) functions.

Furthermore, the CR functions that CARB used were from epidemiological studies that had been identified by U.S. EPA in their 2010 Quantitative Health Risk Assessment for Particulate Matter (see footnote #60 in Appendix G of the ISOR). The IPT methodology, which was used to calculate the PM_{2.5} health benefits of the other air basins and to calculate NO_x health benefits for all air basins, is based on a benefits-per-ton methodology developed by U.S. EPA (see footnotes #64, 65, and 66 in Appendix G of the ISOR).

CARB's health benefits assessment of the CHC Regulation spans 16 years (from 2023 to 2038), with benefits seen each year from PM_{2.5} and NO_x emission reductions. As in prior regulations, CARB staff estimated the cumulative benefits that occur during the period of implementation (see footnote #55 in Appendix G of the ISOR).

IPT factors – comments on uncertainties

CARB did acknowledge sources of uncertainty for the IPT methodology, including meteorological and spatial variables, in Appendix G of the ISOR under section IV.A.4. "Uncertainties Associated with the Mortality and Illness Analysis."

Uncertainties are inherent in these types of health analyses, as described by U.S. EPA in their 2010 "Quantitative Health Risk Assessment for Particulate Matter" (see footnote #60 in Appendix G of the ISOR) and as acknowledged by CARB in footnote #55 ("CARB's Methodology for Estimating the Health Effects of Air Pollution") in Appendix G of the ISOR. Additional information on uncertainties on emissions estimation can be found in Response 3118.17 & 3121.11 & 3377.8; on PM concentrations, see CARB's Response 3118.14; and on PM and DPM, see Response 3294.

Regarding epidemiological study uncertainties, CARB provided our estimates with 95 confidence intervals to account for the uncertainty of the relative risk derived from epidemiological studies. Regarding baseline health and population numbers, CARB used baseline incidence rates from CDC WONDER (for mortality) and BenMAP (for hospitalizations and emergency room (ER) visits). The IPT methodology uses a baseline scenario of 2014-2016, and thus uses incidence rates that are fixed at that time and so do not account for changing population demographics. The highest incidence rates for mortality are among seniors; thus, using a fixed baseline mortality incidence rate for 2014-2016 will underestimate the mortality rate for future years as the proportion of seniors in the population becomes higher.

NO_x as a precursor to the formation of secondary PM_{2.5}

US EPA's 2016 Integrated Science Assessment (ISA) for Oxides of Nitrogen (footnote #54 in Appendix G of the ISOR) describes the conversion of NO_x to PM. CARB's methodology documentation (see footnote #55 in Appendix G of the ISOR) also describes how we estimated NH₄NO₃ concentrations from nitrate concentrations for our IPT baseline scenario.

Overall Benefits of Proposed Amendments

In response to the comment that CARB staff "most likely are overstating the health benefits of the proposed amendments," CARB staff believes that the health benefits are underestimated. In fact, CARB staff states in Appendix G of the ISOR that this analysis actually "only represents a portion of those benefits." This is because CARB did not quantify all possible health endpoints and benefits that could be associated with reducing PM_{2.5}. Health effects such as additional cardiovascular and respiratory illnesses (like asthma), nervous system diseases, and others were not quantified. Additionally, not all PM_{2.5} precursor emissions were taken into account in our methodology.

Presentation of combined health analysis results

The commenter suggested it was not appropriate to present the combined results for the health analysis based on modeled data and those based on the IPT methodology, because the IPT results would tend to be much more uncertain and less reliable.

The health analysis results using the IPT methodology and using modeled data are similar with the modeled data validating the IPT results. Table G-22 and G-23 in Appendix G of the ISOR shows the results using modeled data and IPT results, respectively, for the San Francisco Bay Area and South Coast air basins. Both show that these two air basins account for approximately 85 percent of the statewide PM_{2.5} health benefits.

The commenter also mentions, "Instead of presenting a total number of deaths as the sum across air basins and years, CARB should present results as a range on potential annual impacts for each air basin, separately." CARB notes this comment. CARB calculates and presents the total benefits at a statewide level through the implementation period.

Use of Epidemiological Studies

The commenter states that epidemiological studies "have important limitations that preclude definite conclusions regarding a causal link between PM and mortality or illness," while also recommending the use of other epidemiological studies that "have reported no mortality impacts from PM_{2.5} exposures." However, there is a very strong body of scientific evidence supporting that long-term exposure to PM_{2.5} has a causal relationship with mortality. The U.S. EPA had concluded this in the peer-reviewed 2019 ISA for Particulate Matter, "Overall, recent epidemiologic studies build upon and further reaffirm the conclusions of the 2009 PM ISA for total mortality," and "Collectively, this body of evidence is sufficient to conclude that a causal relationship exists between long-term PM_{2.5} exposure and total mortality" (see footnote #82 in Appendix G of the ISOR). Therefore, the commenter's statement disregards the strong scientific consensus established on the link between PM_{2.5} and mortality.

The commenter stated that, in relation to the use of the Krewski et al., 2009 study, using data from central monitoring sites could result in exposure measurement error by overestimating the health effects. However, previous research as mentioned in the U.S. EPA 2019 PM ISA has shown that exposure error in epidemiology studies often underestimate effect estimates (see footnote #82 in Appendix G of the ISOR). Furthermore, the results from the Krewski et al., 2009 paper remained consistent with a later study on the same cohort using a more detailed exposure analysis method, as also mentioned in the U.S. EPA 2019 PM ISA: "Whereas the initial ACS-CPS II studies focused on assigning exposure using the average PM2.5 concentrations across all monitors, Jerrett et al. (2013) conducted a more detailed exposure assessment using LUR in a subset of the full cohort limited to California. The authors reported a positive association with lung cancer mortality (HR: 1.06 [95% CI: 0.96, 1.17]). Although specific to California, the results of Jerrett et al. (2013) were consistent with those observed in the full cohort using cruder exposure assessment techniques, which included Krewski et al. (2009) as well as a recent analysis by Thurston et al. (2013) that focused on mortality and long-term exposure to PM2.5 components and sources." (see footnote #82 in Appendix G of the ISOR).

The commenter also stated that in the Krewski et al. 2009 study, "the potential confounding factors were only determined at the beginning of the study and not evaluated over the follow up study period." Krewski et al. 2009 included 44 individual covariates and 7 ecological covariates in their model, which is extensive. Furthermore, previous research studies that took into account individual-level time varying covariates such as body mass index, smoking history, and alcohol consumption showed that the study results did not change with adjustment for these confounders (some of these studies are included in the U.S. EPA 2019 PM ISA, footnote #82 in Appendix G of the ISOR).

Threshold for PM2.5 Health Impacts

The commenter states that there is "evidence that there is likely a threshold below which health impacts are unlikely." Actually, the large body of scientific evidence currently indicates otherwise - that there is no safe threshold for PM2.5 exposure. The U.S. EPA has stated in their 2019 PM ISA that "Recent studies that focus on the shape of the CR curve expand upon the health effects evaluated in previous reviews and continue to provide evidence of a linear, no-threshold relationship between both short-and long-term PM2.5 exposure and several respiratory and cardiovascular effects, and mortality" (see footnote #82 in Appendix G of the ISOR). The study that the commenter referenced is nearly 20 years old, and there are several more recent studies that show impacts of PM2.5 at low exposure levels and which were included in U.S. EPA's 2019 PM ISA (see footnote #82 in Appendix G of the ISOR).

PM2.5 composition and toxicity

The commenter suggests that CARB's analyses should not assume that "all PM2.5, regardless of composition, is equally potent," while also acknowledging that "there is still no definitive data that points to any particular component of PM as being more toxic than other components." These statements by the commenter seem contradictory. There is ample evidence that PM2.5 exposure, regardless of source or composition, is linked to adverse health impacts. The U.S. EPA had concluded in their 2019 ISA. for Particulate Matter that the scientific evidence does not yet support treating one type of PM2.5 differently from another

when looking at health effects: "Overall, recent studies continue to demonstrate that many PM2.5 components and sources are associated with health effects... The results of these studies confirm and further support the conclusion of the 2009 PM ISA that many PM2.5 components and sources are associated with many health effects and that the evidence does not indicate that any one source or component is consistently more strongly related with health effects than PM2.5 mass" (see footnote #82 in Appendix G of the ISOR).

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3121.3: "The unaddressed and unacknowledged uncertainty of the CARB model's calculations of the health risk created by harbor craft emissions overstates their impact on the public, likely far beyond just the improper inflation created by the overstated vessel inventory"th

Response 3121.3: CARB staff made no changes to the Regulation Order based on the received comment. See Response 3158.4 et al. regarding health analysis methodology.

Comment 3121.8: "HEALTH STUDY CONCERNS

Given the above-noted inflation of the tug and towing vessel fleet size and operating hours we expect that CARB's assessment of harbor craft emissions is similarly skewed. In fact, Ramboll's estimates based on updated vessel fleet size and operating hours indicates that CARB's emissions are overstated. AWO also asked Ramboll to look at and comment on the Health Study section of the CARB rulemaking packet. Based on this assessment, Ramboll raised serious questions about the methodology CARB used both in its assessment of cumulative harbor craft emissions as well the resulting health effects. Most concerning to AWO is Ramboll's observation that CARB has made no apparent effort to validate its air quality model with verifiable, real-world results. Ramboll conducted a preliminary analysis to validate the agency's harbor craft-related exposure estimates by comparing the CARB modeled air concentrations at receptor points near Long Beach, Anaheim, Pico Rivera, and Los Angeles with the PM2.5 concentrations measured at the sampling stations installed at these locations. Because the sampling stations are designed to capture emissions from all nearby sources, the agency's modeled concentrations for harbor craft specifically would be expected to be within the range of the total measured emissions or, more likely, even lower. Below is the table of results from this exercise, extracted from the Ramboll report.

[See Appendix B for Table provided in Comment #3121.8]

The second column above shows the average annual PM2.5 concentrations measured at the sampling stations listed on the left. Again, these figures show estimated PM concentrations from all sources in the area, including from cars and trucks, rail and harbor craft as well as other sources. They also reflect locations near the shoreline that are most likely to be impacted by harbor craft emissions. The four columns on the right show the CARB's modeled concentrations calculated at four locations nearest to each sampling station. As highlighted in the table, Ramboll found from this preliminary check of the data that CARB's modeled estimates are up to 4 times higher than actual measured concentrations of from all sources captured at sampling stations in the same general area. It makes no sense that the emissions just from harbor craft would be higher than the emissions captured in these areas from all

possible sources. This raises serious questions about the legitimacy of CARB's model and what if any efforts CARB has made to validate it.

Ramboll and AWO made numerous requests for information from CARB staff that would help us understand the methodology the agency used to determine health impacts associated with harbor craft emissions. CARB staff were unable or unwilling to provide much of the necessary information, which has forced Ramboll to make more generalized observations about CARB's approach. Those observations are offered in detail in Section 2.2 of the attached report, but in short, (1) there is enormous uncertainty in the health effects data that CARB has presented calling into question the purported benefits of the proposed rulemaking; and (2) CARB has applied health effects analyses in an unconventional way and has failed to report its findings in a way that transparently acknowledges the lack of certainty inherent in their findings.

What we can say with certainty is that the health risks are overstated, if only by the overestimation of the vessel inventory and emissions, but likely to a much greater extent due to the unaddressed issues with the modeling itself. CARB's overstating the emissions from harbor craft is magnified in each step of the model, with each highly conservative assumption or input that is propagated throughout both risk assessments. Based on the comparison of the model output with actual PM levels at monitoring sites we have reason to believe that the errors in the model are overestimating the actual exposures to communities along the shoreline, and thus overestimating any potential benefits of the proposed CHC rules by a significant margin. This is too important a rulemaking to be based on a health study with so much unaddressed uncertainty. CARB needs to take the time to get this right.

To that end AmNav urges CARB to:

- Develop an accurate vessel population data set using available means of gathering real-time vessel operating information and emission profiles. This should be done for all vessel categories.
- Validate the emission model to ensure inputs and results are realistic and accurately portray the impact of CHC emissions
- Amend the study utilizing the corrected data set to determine the industry specific impact and need for regulation.
- Redraft the Proposed Regulations in collaboration with the CHC industry and other stakeholders to reflect the conclusions of the new study, and the best path achieving our common goal of a cleaner and healthier environment.

Moving forward with regulation without correcting errors in the underlying data set undermines the legitimacy of the regulatory process."

Response 3121.8: CARB staff made no changes based on the received comment. Please see Response 3118.17 et al. regarding tug and tow vessel population and emissions inventory. Please see Response 3118.6 regarding the health risk analyses methodology and uncertainty and Response 3118.14 regarding Ramboll's report and comparison to CARB's modeled concentrations.

Additionally, the CHC ISOR Appendix G: Health Analyses⁵⁶ was posted on September 21, 2021, and provides the methodology for the HRA and mortality and illness analysis. The modeling and results files for the HRA⁵⁷ were provided to the public on October 22, 2021 and will be available until final approval and action from the Office of Administrative Law has taken place.

Please also see Response to Comment 3121-2 and Master Response 3 in the Response to Comments on the Draft EA.

Comment 3158.4 & 3378.5: “The count of vessels and the understanding of how emissions are generated at each port are faulty, and therefore the impacts on health cannot be qualified.”

Response 3158.4 et al.: The CHC health analysis was conducted using the best available information regarding past, current, and projected future engine data. Staff used both AIS transponder data and CARB’s 2021 emissions inventory data to model cancer and non-cancer health impacts.

An AIS transponder is a navigation safety device that monitors and transmits the location and characteristics of many vessels in U.S. and international waters. AIS data are collected by the USCG and prepared by the U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management and the U.S. Department of the Interior’s Bureau of Ocean Energy Management (BOEM). AIS data include, but are not limited to, location, time, vessel type, and speed. Staff extracted the information for each CHC category in California coastal waters from the 2017 AIS data. Staff used the AIS vessel traffic data to allocate CHC emissions spatially and temporally as needed for the air dispersion model inputs.

The 2021 Emissions Inventory was updated with the following input data available at the time of the update:

- Vessel and engine population and profile data obtained from Port of Los Angeles (POLA), Port of Long Beach (POLB), Port of Oakland, CARB reporting data 2019, and USCG data;
- Population and activity growth factors were estimated based on historical trends in the past decade;
- Survival and purchasing curves were developed from the age distribution of CHCs in CARB reporting data from 2019;

⁵⁶ CARB, Proposed Amendments to the Commercial Harbor Craft Regulation, <https://ww2.arb.ca.gov/rulemaking/2021/chc2021>.

⁵⁷ CARB, Commercial Harbor Craft – Health Risk Files <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

- Load factors were updated using CARB reporting data and Engine Control Module (ECM) data voluntarily supplied by industry during 2019 and 2020; and
- Emission factors were updated using U.S. EPA marine and off-road engine certification data.

The updated inventory methodology used data reported to CARB and the ports between 2010 and 2019 to project future baseline and control emissions scenarios for each vessel type, engine type (i.e., main engine or auxiliary engine), and pollutant.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3158.18 & 3378.19: “The verification of the vessel data as mentioned above is critical in estimating health benefits or declines from CHC emissions.” The “above” mentioned is in Comment 3158.14 et al.

Response 3158.18 et al.: CARB staff agrees that using the best data possible when modeling emissions, which inform health benefits, is critical. The choices used in inventory are documented in detail in the emission inventory documentation, in Appendix H of the ISOR, and further justified in Response 2588.11.

CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.14 et al. regarding the emissions inventory methodology.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3158.19 & 3378.20: “To our knowledge, there is not a comprehensive health study that specifically identifies CHC emissions as the highest source of pollutants that impact health. In San Diego in particular, there are a variety of pollution sources such as the Highway 5 freeway and car and truck traffic that run through the neighborhoods adjacent to the Port that likely contribute to the impact on health in the immediate area in addition to marine vessels. It is recognized that everyone benefits from reduced emissions, but the drastic measures that are being targeted at CHC vessels is not the whole solution to the issue. It has been acknowledged that each port in California is unique and may have other contributing factors to emissions besides CHC. We would like to see a study done that looks at all of the sources of pollution that contribute to health impacts before regulations are changed. We would like a study of each port and the contributing emission sources so that a better picture of CHC emissions can be generated and solutions can be created that are in proportion to the pollution.”

Response 3158.19 et al.: CARB staff made no changes to the Regulation Order based on the received comment. CARB’s goal is to achieve the maximum feasible and cost-effective emissions reductions from new and in-use CHC. The Regulation will better protect public health by achieving lower emissions in the most cost-effective way possible for each vessel category. As indicated in the comment, the risk to public health from ambient emission exposure can vary by port. Since the sources of emissions are many and varied and span multiple sectors, these emission sources cannot be addressed through a single rule or regulation. CARB staff has been and is in the process of developing a number of regulations to reduce emissions, including amendments to the drayage truck regulation and this

rulemaking action. These regulations will work together to achieve the goal of reducing the overall concentrations of toxic and criteria pollutants in the ambient air and the overall risk to public health that results from those concentrations.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3158.20 & 3378.21: “Page 5 of the Public Notice reads (underline ours for emphasis):

“The Proposed Amendments are expected to improve California residents’ health benefits, especially those in communities located near California’s seaports and marine terminals. Many of these communities are disadvantaged and bear a disproportionate health burden due to their close proximity to emissions from CHC (at dock, and in transit) and other emission sources including trucks, locomotives, and terminal equipment serving the seaports. These improvements in health benefits are anticipated to include reductions of 531 premature deaths reduced, 73 hospital admissions for cardiovascular illness, 88 hospital admissions for respiratory illness and 236 emergency room visits. The total statewide valuation due to avoided health outcomes between 2023 and 2038 totaled \$5.25 billion.”

We agree that any improvement in someone’s health or preventing a premature death is very important, however, the numbers referenced above are shockingly small for a time span of 15 years that covers the entire state of California. We question the results, are the gains really that small?”

Response 3158.20 et al.: These benefits only represent a portion of the public health benefits that will result from the regulation. Not all PM2.5 precursor emissions were analyzed in our methodology. Additionally, CARB did not quantify all possible health endpoints and benefits that could be associated with reducing PM2.5. Health effects such as additional cardiovascular and respiratory illnesses (like asthma onset), nervous system diseases, and others were not quantified. Note also that the hospitalizations for cardiovascular and respiratory illnesses were only evaluated for the senior subpopulation (those age 65 and above), based on the CR function derived from the epidemiological study used for this endpoint (Bell et al., 2008). While most of the reduced hospitalizations are expected to occur among seniors, there could be additional benefits seen in the rest of the population that are not being included. The other two endpoints evaluated by CARB are more inclusive of the larger population, based on their respective epidemiological studies). In addition, studies have found some racial and ethnic subgroups experience larger mortality impacts than the general population according to the 2019 PM ISA (see footnote #82 in Appendix G of the ISOR). For future regulations, we hope to quantify additional benefits. We did additionally provide a qualitative discussion of a broader set of health impacts from marine operations in section IV.C. of Appendix G of the ISOR (“Marine Operations Impact Vulnerable Populations and Health Disparities”) with these health impacts, such as on cancer risk and childhood asthma, expected to reduce due to improvements in air quality from the CHC Regulation (see footnotes #3 and 89 in Appendix G of the ISOR).

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3195.31: “SAC asked for separate risk reduction numbers for inspected and six-pack vessels. CARB indicated these data were not separated. We believe CARB should have the data to do these calculations separately. Once CARB completed the separate emission numbers above, this task would be easy to complete.

SAC asked for separate health benefits numbers for inspected and six-pack vessels. CARB indicated that these data were not separated. We believe that CARB should have the data to do these calculations separately once they completed the separate calculations for emissions and risk reductions.

SAC asked for a separate air modeling, risk calculations, and health benefits analysis for inspected and six-pack vessels as part of the detailed analysis completed in the BAAB and SCAB. CARB indicated that this analysis was not completed separately for each vessel category, which we believe is a major flaw in the analysis. It is critical to know which vessel types are contributing the most to these risks/health benefits.”

Response 3195.31: CARB staff made no changes to the Regulation Order based on the received comments. CARB does not maintain separate subcategories in the reporting database or emissions inventory for vessels in the CPFV sector. CARB’s CHC emissions inventory used for this rulemaking shows the relative contributions of each vessel sector in the Statewide CHC inventory. CARB’s Health Risk Analysis utilized the cumulative total of all CHC emissions in the regions analyzed. Further resolution by vessel subcategory is unavailable unless stakeholders or trade organizations hire consultants to complete their own regional emissions inventory analyses and vessel subcategory health risk analyses to support their claims of having little to no negative public health impact. See the Board-directed 15-day changes to the Regulation Order outlining a new compliance pathway and a new compliance timeline for all CPFV vessels.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Please see Response 3195.30 regarding the air dispersion modeling methodology.

Comment 3195.34: “Some of CARB’s analyses conflate the overall projected risk impacts and health care benefits of ALL CHC and not specifically the 174 inspected CPFVs. Sportfishing and whale watching boats typically represent a very small portion (approximately 10%) of the CHC found in most marinas and harbors. Further, CPFVs are not present in significant numbers within large ports that serve international vessels where CARB’s projected health benefits are greatest (e.g., Los Angeles and the San Francisco Bay Areas). As already highlighted above, approximately 50% of the full-time USCG inspected CPFV’s operate from San Diego County; however, only approximately 7% of the expected health benefits per CARB’s numbers occur in San Diego County. This strongly suggests that stringently regulated inspected CPFVs will not deliver the substantial health benefits invoked to justify this rule.

SAC made the following data requests relative to this issue:

- SAC asked for separate risk reduction numbers individually for all CHC vessel types. CARB indicated these data were not calculated, which makes it impossible to compare and contrast the risk contribution of each vessel type.

- SAC asked for separate health benefits numbers individually for all CHC vessel types. CARB indicated that these were not evaluated, which makes it impossible to compare the relative contributions of each vessels category to the alleged health benefits under the rule.
- SAC asked for separate air modeling, risk calculations, and health benefits for each CHC vessel type for the detailed analysis in the BAAB and SCAB Basins. CARB said that this analysis was not completed separately by vessel, which prevents us from demonstrating that inspected CPFVs are minor contributors to risks/health benefits in these key locations, compared to other CHC.”

Response 3195.34: CARB’s emission inventory, air quality dispersion modeling and therefore modeled cancer risk is accurately described in Appendix G to the Staff Report. The CHC health risk analysis modeling files, which include both PM2.5 concentrations and diesel PM cancer risk values, are available for download at the following website: <https://www.arb.ca.gov/CommercialHarborCraft-Health-Risk-Files>.⁵⁸ The analysis demonstrated in the staff report establish the need of emission reductions across all CHC sectors.

Please see Response 3195.31 regarding data requests.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Please see Response 3195.30 regarding the air dispersion modeling methodology.

Comment 3195.36: “CARB’s Reliance on the Two-Highest Polluted Communities for Detailed Modeling, Without Similarly Modeling the Communities Where Most of the CPFV’s Operate, Creates Unsupported or False Correlative Assumptions. The selection of only SCAB and BAAB for detailed modeling and risk analysis does not accurately represent the inspected CPFVs where 50% are in San Diego. In addition, the CPFV fleets in these two locations are different from those in San Diego because they spend more time in near shore fishing. The San Diego inspected CPFVs spend the majority of their engine operating time outside of the 24-mile radius. CARB should have completed detailed modeling and risk analyses for each Air Basin as well as separate detailed analyses for each of the vessel categories at each port location, so that stakeholders and the public could see the relative contributions of each vessel type in each location, including port and Air Basin. If this would have been done, then more informed decisions could have been made as to which vessels in which locations should be regulated and at which stringency level.”

Response 3195.36: Staff chose to evaluate the health impacts in the South Coast Air Basin (SCAB) and San Francisco Bay Area Air Basin (BAAB) for all CHCs. Staff selected these air basins based on the size of ports and marine terminals, vessel activity, emissions, and proximity to coastal and DACs. SCAB represent 28.8% and BAAB represent 36.6 percent of the 2023 statewide CHC DPM emissions in California. San Diego represents 13 percent of

⁵⁸ CARB, Commercial Harbor Craft – Health Risk Files <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

the 2023 statewide CHC DPM emissions in California, lower than SCAB and BAAB. The inspected CPFV percentage contribution is irrelevant since staff chose the modeling domains based on all vessel category emission, not based on one category emissions.

Staff used RCW vessel activity percentage to account for vessel operating locations. Statewide, 83 percent of CPFV operation is within RCW. In some areas of the State, CPFVs may operate less within RCW (possibly in the San Diego region due to the proximity to international waters south of the California-Mexico border). For every region or local that has operation below the Statewide average, there is another region or local that has a greater amount of operation than the Statewide average.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

Comment 3195.73: "As another example, SAC enlisted a toxicologist to review information on health risks and projected benefits from the rule. Access to these data were provided on October 22, 2021, and this was also incomplete. The toxicologist has the following questions and additional data needs that would need to be fulfilled before an adequate review could be done.

- Multiple values of the concentration-response (CR) function coefficient (β) are available in the source CARB cited (e.g., Bell et al. (2008) for cardiovascular and respiratory hospitalizations). For example, Bell presents four coefficients for cardiovascular hospitalizations and four coefficients for respiratory hospitalization. These four different coefficients correspond to each of four different regions (Northeast, Northwest, Southeast and Southwest). Bell et al. also provides seasonal and nationwide values, as well as 0- day and 2-day lag model coefficients. Please specify exactly which value(s) CARB used in the log-linear model(s) for cardiovascular and respiratory hospitalizations or whether an average or pooled value was used.
- Please specify the exact values of the CR function coefficient CARB used (or derived) from Ito et al. (2007) and Krewski et al. (2009). The Ito et al. (2007) study is based on data from New York City. Did CARB consider the potential effect of regional differences in using the Ito coefficient for California? Population characteristics and the relationship between air pollutants and health impacts are likely to differ geographically, especially when there are large differences in weather/meteorological conditions between the locations.
- The incidence per ton (IPT) factor approach assumes that all of the health outcomes of interest (e.g., premature deaths, cardiovascular/respiratory hospitalizations, emergency room visits) are due to air emissions. There does not appear to be any attempt to correct the IPT factor for incidents unlikely to be related to air emissions. Thus, this approach is likely to overestimate the number of incidents and correspondingly, the benefits accruing from a reduction in emissions. Please provide the IPT factors CARB used and exactly how they were calculated; we were not able to ascertain these values.

- The papers cite by CARB (Krewski and Bell) for the effect coefficients (the slope of the CR function for the effects of premature mortality, etc.) actually contain many if not dozens of coefficients so CARB needs to specify exactly which coefficients they used from these papers. As far as the Ito paper is concerned, the coefficient value is not actually shown in the paper so it is not clear how CARB obtained that value from Ito.”

Response 3195.73: CARB had provided the CR function coefficients for the Krewski et al. 2009, Bell et al. 2008, and Ito et al. 2007 papers on September 21, 2021.⁵⁹ As mentioned in that document, these coefficients, including from Ito et al. (2007), were reported in Table C-1 of the U.S. EPA’s 2010 Quantitative Health Risk Assessment for Particulate Matter.⁶⁰ Regarding the Bell et al. 2008 study, CARB had used the Southwest region coefficient. Regarding the Ito et al. 2007 study, this was the only study identified by U.S. EPA in their 2010 Quantitative Health Risk Assessment for Particulate Matter for estimating the impacts of PM2.5 exposure on asthma ER visits. In estimating asthma ER visits using the coefficient from Ito et al. 2007, CARB staff applied California-specific population projections and California-specific baseline asthma ER visit incidence rates.

The commenter said, “There does not appear to be any attempt to correct the IPT factor for incidents unlikely to be related to air emissions” and “Please provide the IPT factors CARB used and exactly how they were calculated.” The description of how IPT factors are calculated is found in reference #55 (“CARB’s Methodology for Estimating the Health Effects of Air Pollution”)⁶¹ of Appendix G of the ISOR. The inputs for the CR functions were provided on September 21, 2021.⁶² Once these health outcomes associated with primary or secondary PM2.5 are calculated using the CR functions, then they are divided by PM2.5 or NOx emissions, respectively, for the baseline scenario to get the IPT values. Emissions inventories are publicly available on CARB’s website.

Please also see Master Response 3 in the Response to Comments on the Draft EA.

r. Cost, Economics, and SRIA

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⁵⁹ CARB, CHC Meetings & Workshops, <https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft/chc-meetings-workshops>.

⁶⁰ U.S. EPA, Quantitative Health Risk Assessment for Particulate Matter, June 2010, last accessed July 16, 2021, https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf.

⁶¹ California Air Resources Board, CARB’s Methodology for Estimating the Health Effects of Air Pollution, last accessed July 20, 2021, <https://ww2.arb.ca.gov/resources/documents/carbs-methodology-estimating-health-effects-air-pollution>.

⁶² CARB, CHC Meetings & Workshops, <https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft/chc-meetings-workshops>.

(865) (872) (873) (879) (890.2) (910) (924) (935.2) (936) (947) (949) (956) (957) (960) (961) (967.1) (970.3) (975) (981.4) (983) (987) (988) (993) (1001) (1002) (1016.1) (1031.2) (1041.2) (1045) (1047) (1053) (1055) (1064) (1070) (1075) (1088.3) (1091) (1093) (1101.1) (1108) (1114.5) (1121) (1125.2) (1144.2) (1153.3) (1157) (1161) (1175) (1180) (1182) (1192.1) (1194) (1196) (1210) (1211) (1215) (1216) (1217.2) (1229) (1244.1) (1245.2) (1262) (1279) (1284) (1288) (1289) (1294.2) (1296.4) (1298.1) (1305) (1317) (1322) (1325) (1339.2) (1364.2) (1369) (1379) (1380.3) (1389) (1397) (1406.2) (1412.1) (1416.1) (1420) (1423.1) (1432.2) (1437.2) (1443) (1444) (1455) (1463) (1464) (1465.3) (1475.1) (1489.2) (1491) (1498) (1499.1) (1507) (1513.1) (1515) (1516) (1536) (1544) (1545) (1547.1) (1549) (1569) (1570) (1574.1) (1576) (1582.1) (1590.2) (1596) (1606) (1612.3) (1615.5) (1617) (1622.2) (1623.1) (1627) (1634) (1635) (1636) (1638) (1643.1) (1647.3) (1648) (1660) (1672.2) (1675.4) (1679.2) (1684) (1698.2) (1699.6) (1700) (1704.2) (1706.1) (1707.5) (1725) (1745) (1754) (1781.1) (1788.2) (1798) (1800) (1837) (1842) (1843) (1855.1) (1864) (1878) (1881) (1882) (1899) (1915) (1926) (1935) (1943) (1944) (1949) (1961.2) (1965.1) (1969.1) (1980) (1982.1) (2008) (2018.1) (2024.1) (2053) (2059.2) (2066) (2067) (2068) (2088.3) (2091.2) (2093) (2111) (2114) (2118.1) (2120) (2122.2) (2126) (2130) (2132.3) (2145) (2154) (2195) (2200.2) (2209) (2210) (2228.5) (2241) (2242) (2248) (2252) (2254.1) (2277.3) (2282.3) (2295) (2301.4) (2307) (2308) (2313) (2316) (2318) (2322) (2327) (2333) (2336.3) (2337.2) (2340) (2341) (2347.1) (2348) (2349) (2350) (2353) (2356) (2358.3) (2360.1) (2362) (2365.1) (2367) (2369) (2371) (2374) (2377) (2379.3) (2380) (2385.3) (2387) (2389) (2397.2) (2399) (2414) (2415) (2417) (2420) (2423) (2424) (2425) (2428) (2437.1) (2438) (2440) (2441) (2446.2) (2453) (2462) (2467) (2493) (2494) (2497) (2498.4) (2505.2) (2508) (2509.3) (2510.2) (2514) (2516) (2522) (2525.3) (2526) (2534) (2538) (2540) (2542.1) (2543) (2551) (2555.2) (2566.4) (2567.7) (2574.2) (2575.1) (2578) (2588.1) (2590.2) (2593) (2601) (2606.2) (2606.4) (2607.1) (2607.3) (2613.1) (2619.1) (2624.5) (2628.2) (2629.1) (2629.5) (2632) (2644) (2649) (2652) (2662) (2664) (2667) (2669) (2676) (2677) (2678) (2684.1) (2690) (2694) (2702.2) (2708) (2709) (2717) (2728) (2735) (2740) (2741) (2757) (2767) (2771.1) (2774) (2783.1) (2784) (2793.1) (2841.4) (2845) (2852) (2873) (2881) (2916) (2937) (2986) (3000) (3014.1) (3021.1) (3023.2) (3032) (3049) (3058) (3082) (3090) (3098.1) (3098.3) (3111) (3130) (3195.42) (3195.53) (3232) (3261.1) (3261.12) (3261.9) (3263.2) (3279.2) (3350.2) (3372.1)

Summary of Comment 2.6 et al.: Many commenters affiliated with the sportfishing industry expressed concerns about the 2022 Amendments' effect on local and state economy, should sportfishing operators go out of business due to compliance costs. Commenters indicated that sportfishing and whale watching charters bolster the local economy, as passengers spend money at restaurants, stores, and hotels. Commenters stated that if sportfishing operations go out of business, it threatens jobs dependent on outdoor recreation and tourism, and that significant harm would come to coastal communities that depend on outdoor tourism. Some commenters indicated that they spend a lot of money on sportfishing trips, sometimes coming from out of state, for travel, equipment, tickets, tips, restaurants, tackle shops, etc. Commenters also suggested that the 2022 Amendments will undermine the Governor's efforts to restore 1.2 million hospitality and tourism related jobs lost in the COVID-19 pandemic. Comments stated that sportfishing businesses have brought \$5.6 billion for the State of California and supported 40,000 jobs.

Many commenters also expressed concern over the loss of revenue from state fishing license sales that the Department of Fish and Wildlife will experience, as fishing license sales and

fees support conservation of ocean resources. Other comments expressed concern that the sportfishing business will move to Mexico, and residents will move out of California.

Response 2.6 et al.:

Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617 and the DOF. The SRIA represented a point-in-time estimate evaluating the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, Gross State Product, and output. The cost and economic analysis was updated in the Staff Report Chapter IX and further corrected in the October 1, 2021 Errata.

CARB's macroeconomic modeling analysis used the REMI model to estimate the impact of the 2022 Amendments on California's economy. In Chapter E of the SRIA, staff acknowledged that industries that operate CHC would face costs and see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and would face significant compliance costs. The water transportation industry and the fishing, hunting, and trapping industry were estimated to face decreases in output of up to 1 percent in the years of greatest impact. SRIA Table E-3, Summary of Employment Growth Impacts Associated with the Proposed Amendments, presented the modeled impacts of the 2022 Amendments to scenic and sightseeing transportation and support activities for the transportation industry. This analysis, which includes industries the commenters refer to, showed that the modeled impacts to employment growth would be equal to or less than 0.1% statewide.

The economic analysis prepared for this rulemaking is a statewide estimate and does not estimate compliance costs for any specific business. CARB staff understands that the basis of the commenters' concerns was the expectation that due to their fiberglass and wood construction, most CPFV would need to be replaced to meet the performance standard unless and until drop-in Tier 4 + DPF technology becomes available. In response to CPFV stakeholder concerns and at the Board's direction, CARB staff made a 15-day change to the Regulation Order to provide a one-time, ten-year compliance extension pathway for CPFV that have Tier 3 engines by the end of 2024. CARB staff anticipates that there would be fewer vessel replacements than expected without this compliance extension pathway, and that vessel owners who opt into the ten-year extension would have more time to plan financially for meeting the performance standard by the end of 2034.

However, the 2022 Amendments require vessels to meet the performance standard regardless of ability to pay once extensions expire (including the ten-year extension for CPFV and other extensions in subsection (e)(12)(E) that apply to whale watching and other vessels), CARB staff acknowledges this may have an impact on small businesses in California as stated in the SRIA.

Please refer to Response 2228.4 for the impacts of fees paid to federal and state agencies. Also see Response to Comments 3174-1 and 3195-9 in the Response to Comments on the Draft EA regarding CDFW license fees.

Please refer to Master Response 2 from the Response to Comments on the Draft EA regarding economic leakage.

Comment 810.1: “Harbor Craft be changed so as not to have such a severely negative impact on Tourism and Sport Fishing boats. I support improving the air quality in California. But I think new measures should be subject to a cost benefit analysis. In this case I find it hard to believe that the proposed regulations, when implemented will have a significant impact. Especially with only a few hundred boats subject to the change. However the costs to ocean sport fishing in CA will be great. Most sport fishing operations are barely profitable. If owners are forced to build new boats most will simply go out of business.”

Response 810.1: Staff did a cost benefit analysis for the 2022 Amendments in the SRIA. The health benefits of the 2022 Amendments (\$5.3 Billion) would far outweigh the cost of the compliance costs (\$2 billion). Chapter II of the Staff Report extensively discusses the need to reduce emissions from harbor craft to reduce exposure to harmful diesel pollution, particularly in DACs throughout the State. As stated in SRIA Chapter B, the 2022 Amendments will also result in unquantified benefits including better visibility throughout regions near seaports, marinas, harbors, and other waterways due to the improved air quality.

The SRIA looked at the cost to small businesses such as CPFV owners. For CPFVs, the SRIA found that the increased direct costs for compliance with the 2022 Amendments, although possibly absorbable within most CPFV businesses’ profit margins, would most likely be passed onto the customer. However, staff cannot rule out the possibility of some business elimination if costs cannot be passed on to the customer or if passing through costs would result in a significant decrease in demand.

Subsequent to the second public hearing, staff proposed 15-day changes to the 2022 Amendments. The 15-day changes included an additional extension option for CPFVs which would be a one-time, ten-year extension to meet the Tier 4 + DPF requirement by 2034 if all onboard engines are Tier 3 by the end of 2024. Under the proposed 15-day changes pathway, by 2034, staff expects technology options for Tier 4 + DPF engines to be available as drop-in replacements that would not require substantially modifying or replacing CPFVs as modeled under the original proposal, therefore there will be fewer vessel replacements expected for the commercial passenger fishing industry.

Comment 815: “We strongly support the sport fishing industry and their opposition to the proposed regulations for commercial harbor craft. The cost of compliance will be enormous and the benefit to the environment minimal. Once again CARB really needs to do a realistic cost/benefit analysis and must include this in their decision-making process. There are multiple other less expensive actions that could benefit the environment substantially. By burdening the marine industry and boaters before cost-effective technology is available will deprive all but the very rich access to our coast and marine recreation.”

Response 815: CARB evaluated the costs and health benefits of the 2022 Amendments in the SRIA. The health benefits of the 2022 Amendments (\$5.3 Billion) would far outweigh the cost of the compliance costs (\$2 billion) (Please see Response 810.1).

In response to the comments received during the rulemaking process and at the Board’s direction, CARB staff made 15-day changes to the 2022 Amendments to provide a one-time, ten-year compliance extension pathway for CPFV. See Response 1.7 et al.

Comment 834: "It appears that the proposed passenger boat regulations that require new engines and technology that is not feasible from a safety, financial or operational standpoint. Please do not put these small businesses out of business. In the calculated cost impacts on the 6-pack example could result in \$93.51 per passenger additional cost to only pass along the amortized cost.

In addition, the cost analysis states that "The maximum non-amortized costs for this typical small business is 1.9 times of their annual revenue, while the maximum amortized costs for this typical business is 9.3 percent of the average annual revenue for businesses in the industry.

This is absolutely not going to allow these business to stay in business. In fact the report also states "However, staff cannot rule out the possibility of some business elimination if costs cannot be passed on to the customer or if passing through costs would result in a significant decrease in demand."

This will pretty much be the death knell for many of these businesses, so please look to modify or eliminate these rules to save these businesses."

Response 834: For feasibility, with regard to approved technologies that could be used to achieve the requirements of the 2022 Amendments, Appendix E of the ISOR contains a review and assessment of the feasibility associated with the performance standards included in the 2022 Amendments. As discussed in Section IV.C of Appendix E of the ISOR, the careful analysis of many overlapping vessel design requirements must be evaluated before a feasibility determination can be made. Standards for vessel design are addressed in Title 46 of the CFR. These vessel design standards address vessel stability, trim characteristics, buoyancy, and vessel structural design limit requirements. Regarding retrofitting of existing vessels, any additional aftertreatment devices must be consistent with gross register tonnage requirements to maintain USCG compliance. CARB staff recognizes that some vessels may not be able to be reconfigured to accommodate cleaner engines and emission control devices and has accordingly accounted for a fraction of vessel replacements as indicated in Appendix C-1 of the ISOR. Additional information on technical feasibility is contained in Appendix E of the ISOR.

See Master Response 1 in the Response to Comments on the Draft EA regarding safety of the 2022 Amendments.

Appendix C of the ISOR presents the SRIA for the 2022 Amendments. As discussed on page 142 of the SRIA:

Industries that operate CHC would face costs and see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and would face significant compliance costs. The water transportation industry and the fishing, hunting, and tripping industry are estimated to face decreases in output of up to 1 percent in the years of greatest impact.

In response to the comments received during the rulemaking process and at the Board's direction, CARB staff made 15-day changes to the 2022 Amendments to provide a one-time,

ten-year compliance extension pathway for CPFV. See Response 1.7 et al. and Response 810.1.

Comment 1430: "I reviewed the "Initial Statement of Reasons" with particular attention to the new CPFV category of vessels. It is my opinion that the proposed regulation will put most Commercial Passenger Fishing Vessels out of business as most will not be able to comply with the regulation, even given the allowable extensions. The section "California Employment Impacts" may paint a rosy picture for shipyard operations and mechanics, but the many businesses that support the Commercial Passenger Fishing Vessel industry on a daily or weekly basis will be negatively impacted. The CPFV industry is a small industry with little environmental impact compared to the other industries that are affected by this proposal. I believe that identifying a set of criteria for providing an exemption for these small businesses will allow them to continue to operate. However, I suspect that CARB has little regard for these small operators and will regulate them out of existence."

Response 1430: See Response 2.6 et al.

The SRIA looked at the cost to small businesses such as CPFV owners. For CPFVs, the SRIA found that the increased direct costs for compliance with the 2022 Amendments, although possibly absorbable within most CPFV businesses' profit margins, would most likely be passed onto the customer. However, staff cannot rule out the possibility of some business elimination if costs cannot be passed on to the customer or if passing through costs would result in a significant decrease in demand.

Regarding the commenters' assertion that the CPFV industry is a small industry with little environmental impacts compared to other CHC industries, refer to Chapter II of the Staff Report regarding the need to reduce emissions from CHC including CPFV.

Comment 1603.2: "The cost estimations utilized are not adequately sourced. Passenger fishing and other commercial vessels are made of a diverse variety of materials, including wood and fiberglass, among others. These vessels vary greatly in size, weight and passenger capacity, and their dimensions may or may not accommodate the required retrofit technology. The associated costs are likely to vary widely. Additionally, the estimated costs to replace vessels if retrofit is impossible also lack adequate references and sources for explaining the estimated calculation. No information is provided on local markets for new vessel construction. Most new commercial passenger vessel construction occurs outside of California, further inflating costs on these businesses. Because many of the impacted businesses are small, family-owned businesses – many of which were decimated during the pandemic due to state and county health orders prohibiting their operation as a "non-essential activity" = the ability to finance vessel replacement in compliance with these draft regulations is significantly over-estimated and appears to be largely unaccounted for in the development of this rule."

Response 1603.2: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in the SRIA Appendix A: Cost Analysis Inputs and Assumptions for SRIA. The sources of cost estimations included stakeholder inputs, CMA Study and other sources. The vessel replacement costs, including 100 CPFV replacement cost data points provided by the sportfishing industry, are also listed in Appendix A of SRIA.

In response to the comments received during the rulemaking process and at the Board's direction, CARB staff made 15-day changes to the 2022 Amendments to provide a one-time, ten-year compliance extension pathway for CPFV. See Response 1.7 et al. and Response 810.1. CARB staff expects this extension will allow CPFV owners to apply for incentive program funding for early or additional emission reductions they can achieve before the new 2034 deadline, and also give equipment manufacturers time to develop technology that is more feasible for CPFVs. By 2034, CARB staff expects technology options for Tier 4 + DPF engines to be available as drop-in replacements that would not require substantially modifying or replacing CPFV as modeled under the original proposal. This is expected to lessen the economic impacts to CPFV businesses.

Comment 2228.1: "To date, CARB has refused to conduct an appropriate vessel replacement analysis; essentially providing all boat sizes and uses and the equipment envisioned to a credible shipbuilder and an analysis of at what price point passengers will no longer fish offshore. Moreover, boat operations and the length of fishing seasons vary widely from Southern California to the Central and North Coast, all of which should have been factored into CARB's analysis to determine whether regulatory costs and/or vessel replacement is economically feasible throughout the industry.

The only credible comment by CARB is the fact that they concede that business elimination is possible but continues to withhold any analysis that led to this determination or how widespread the business elimination will be.

"...(CARB) staff cannot rule out the possibility of some business elimination if costs cannot be passed onto the customer or if passing through costs would result in significant decrease in demand." - CARB, Standardized Regulatory Impact Assessment, July 7, 2021

The broad-based consensus among the boating industry is that CARB has grossly underestimated the cost of vessel replacement, especially since no assessment can be made on engine technology that has not been developed yet. If this proves to be so and if some replacement vessels cost double to triple CARB's estimate, business elimination will be significant"

Response 2228.1:

Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in the SRIA Appendix A: Cost Analysis Inputs and Assumptions for SRIA. The vessel replacement costs are included in Appendix A of SRIA.

As discussed on page 142 of the SRIA:

Industries that operate CHC would face costs and see net decreases in output growth and employment. Some of these businesses are large and would not be anticipated to face business elimination. However, many are small businesses and would face significant compliance costs. The water transportation industry and the fishing, hunting, and trapping industry are estimated to face decreases in output of up to 1 percent in the years of greatest impact.

Also see Response 1603.2 regarding the 15-day change for CPFV.

Comment 2228.2: “CARB’s economic analysis also reflects a failure to recognize that the recreational angling community is racially and economically diverse and many passengers tend to be people who do not have the means to own a recreational boat. For example, 38% of anglers in the U.S. have an income of \$49,999 or less, and 59% have an income of \$74,999 or less.

What’s more, anglers are no different than other consumers when it comes to how they spend their disposable income – they seek value. Unlike some amusement parks where admission can cost less than a full day of offshore fishing, fishing passengers are not assured some minimum level of satisfaction. Anglers are not guaranteed to catch a fish, just the opportunity. This is an ongoing challenge for the industry’s ability to attract returning customers, unlike amusement parks, and most other forms of recreational activity and entertainment. The passenger boating industry’s ability to retain customers will only grow as passenger prices increase.

It should be evident by reviewing the chart that CARB’s regulations will lead to the gentrification of offshore sportfishing, a luxury reserved only for those of greater economic means.”

[See Appendix B for Table provided in Comment #2228.2]

Response 2228.2: As discussed on page 140 of the SRIA:

“Total personal income increases by \$59 million in 2023, followed by a gradual decrease, ending with a decrease of \$205 million in 2037. The change in personal income can also be divided by the California population to show the average or per capita impact on personal income. Personal income initially increases by approximately \$1 per person in 2023 and decreases by about \$5 per person in 2037, the year with the greatest impact.”

Also see Response 1603.2 and Response 1.7 et al. regarding the 15-day change for CPFV. See Response 2.6 et al. regarding economic impacts.

Comment 2228.4: “When CARB developed its economic analysis, the Standardized Regulatory Impact Assessment, it failed to evaluate the financial impact the regulations would have on CDFW license sales and revenue. As fishing participation declines, the CDFW stands to lose fishing license sales and revenue that fund state conservation and fisheries programs that are essential to protecting our environment, endangered species and habitat – both offshore and inland. The Department of Boating and Waterways also stands to lose funding.

Compounding the funding risk, as fishing rod, reel and lures and boat fuel sales decline, so will the State’s share of federal excise taxes and Dingell-Johnson Act funding that are distributed as a federal matching grant to the states. In 2020, California received \$17 million from the U.S. Department of Interior that is provided as a \$3 (federal) to \$1 (state) match.”

Response 2228.4: See Response to Comments 3174-1 and 3195-9 in the Response to Comments on the Draft EA. As stated in Response to Comment 3195-9, CARB staff did not assume changes to the demand for sportfishing activity as a compliance response to the 2022 Amendments. Therefore, a decrease in revenue would not be expected.

Comment 2565.1: “Your proposed rule shows no consideration whatsoever for the economic consequences of this action. You will, quite simply, be eliminating many small businesses in what you claim is for the “greater good”. Remember we are also part of the coastal population you claim to defend. All you are really doing is putting many people out of work with some demonstrably suspicious data analysis. This is not the way the government should operate. ALL downstream effects should be considered in this you have not done.”

“With regard to the data that CARB is basing their conclusions on:

- 1- The stated benefits are greatly overstated.
- 2- The cost of retrofit or replacement of vessels is greatly over stated.”

Response 2565.1:

CARB staff has posted the Staff Report and made the rulemaking record available for public review as legally required. CARB staff documented the cost analysis and health benefits for the 2022 Amendments in the SRIA (Staff Report Appendix C-1, further updated in Staff Report Chapter IX and the October 1, 2021 Errata. The analysis showed that the health benefits of the 2022 Amendments (\$5.3 Billion) would far outweigh the cost of the compliance costs (\$2 billion) statewide.

CARB’s emission inventory, air quality dispersion modeling and therefore modeled cancer risk is accurately described in Appendix G to the Staff Report. The CHC health risk analysis modeling files, which include both PM2.5 concentrations and diesel PM cancer risk values, are available for download at the following website:

<https://www.arb.ca.gov/CommercialHarborCraft-Health-Risk-Files>.⁶³

In addition, CARB staff has publicly posted and answered questions of regulated industry to simplify the process of quickly providing requested information. CARB staff disagrees that the benefits and cost of retrofit are overstated.

See Master Response 3 in the Response to Comments on the Draft EA regarding accuracy of assumptions and estimates.

Comment 2588.2: “In Appendix C-1, Table C-32, Staff assume vessel replacement cost of a CPFV that is compliant with proposed rules and current USCG regulations to be \$1,883,524. This appears to be a wildly optimistic number. I am attaching a current quote for a Southern California style new charter vessel by Snow and Company (www.snowboatbuilding.com) (Appendix 1). Their quote for a traditional propulsion package (shafts and props), is \$4.1 million. However, this quote does not include overnight passenger accommodations nor enough fish hold, nor bait capacity. The New Lo-An has 40 overnight passenger bunks, and 6 crew bunks, while the quoted vessel only has overnight berthing for 3 crew. The New Lo-An has bait tanks holding 3000 gallons of water and 290 scoops of bait, while the quoted vessel only carries 365 gallons and 24 scoops of bait. The quoted vessel has one fish hold with a single 5 ton refrigeration system. The New Lo-An has three separate holds with three

⁶³ CARB, Commercial Harbor Craft – Health Risk Files <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

separate 3 ton refrigeration systems. These are major structural changes which will increase the cost of the vessel by hundreds of thousands of dollars in order to build a replacement that can equal the New Lo-An's current revenue."

Response 2588.2:

In Appendix C-1, Table C-32 in SRIA, the vessel replacement cost of \$1,883,524 is an average and also includes the estimated resale value from the old vessel. The vessel replacement cost value used in the SRIA was based on approximately 100 new vessel costs provided by the SAC and 1 new vessel cost from the CMA study. The range of costs in these data points is from \$180,000 to \$8 million. The \$4.1 million vessel replacement cost cited here is within this range.

Also see Responses 810.1 and 2.6 et al. regarding the 15-day change made to provide a one-time, ten-year extension for CPFV.

Comment 2602.9: "With respect to CARB's cost-benefit calculations, it appears that CARB is improperly applying a twenty-times (20x) multiplier to the estimated reductions of PM2.5 (See SRIA, p. 163.) That 20x multiplier, however, was developed for assessing how to allocate Carl Moyer incentive funds, not for assessing the monetized health benefits of a proposed CARB regulation as a component of an actual regulatory cost-benefit analysis. Thus, through the improper application of an arbitrary 20x multiplier to the estimated reductions of PM2.5, CARB has vastly and unreasonably overstated the putative benefits, and has similarly vastly understated the costs of the proposed CHC regulations. More specifically, if the 20x factor is backed out of CARB's cost-benefit analysis (as it should be), the cost per-ton of the proposed rulemaking would increase from \$28,878/ton to \$577,560/ton. To address this fundamental flaw in the rulemaking record, CARB will need to redo the cost benefit analysis for the proposed CHC amendments without using the 20x multiplier, and instead using CARB's established quantitative risk assessment procedures (which should be based on the most relevant and current epidemiology studies and relative risk factors) for monetizing the benefits of potential avoided health effects due to marginal reductions in emissions."

Response 2602.9:

The commenter is correct that the 20-times multiplier for PM emissions is part of the cost per weighted ton formula used by the Carl Moyer incentive program. CARB staff calculated an average cost per ton using this methodology to compare the relative cost-effectiveness of the 2022 Amendments to those that are paid through this particular air quality incentive program. Therefore, use of this cost per weighted ton metric is not arbitrary and does not result in underestimation of cost or overestimating of emission benefits from the 2022 Amendments.

When calculating overall health benefits of the 2022 Amendments, CARB staff did not use the 20-times multiplier, instead directly used the emissions (Please refer to Appendix G to the Staff Report for the methodology used to evaluate health impacts). CARB staff calculated direct costs of \$2 billion versus valuated health benefits of \$5.3 billion.

See Response to Comment 2602-4 in the Response to Comments on the Draft EA.

Comment 2833.1: "If this bill to increase emissions standard's for vessels is to pass. Not only will it put alot of said vessels out of commission but will also gratefully hurt and devastate a 4 billion dollar industry. The price of fishing will increase dramatically and a lot of people will stop said act, sport, hobby, or career indefinitely. Further increasing the cost of fish in our local grocery stores hurting alot more people in the process. Supply and demand. The demand will always be their. It is the supply that will be hurt. Comercial fisherman will not be able to keep up and will charge more for what little they can provide."

Response 2833.1: Please refer to Response 2.6 et al. for the impacts to the CPFV industry and the State's economy from the 2022 Amendments.

Please refer to Response 3338 for the distinction between CPFV and CFV. Requirements for CFVs are outlined in Subsection (e)(13) beginning on page 90 of 120 in the 15-day Appendix A Regulation Order. The requirements for CFV are less stringent than for other vessel categories. In the SRIA, CARB staff documented the following impacts to CFV small businesses:

"Staff compared these costs to the annual revenue of a typical small business in the Fishing, Hunting, and Trapping Industry, which is \$1.3 million.¹¹³ The maximum non-amortized cost for this small business is 11.5 percent of their annual revenue; however, the maximum amortized costs for this small business is 0.7 percent of the average annual revenue for businesses in the industry. Note that these costs do not account for the use of any public grants or air quality incentive funding, which has typically been widely used by the commercial fishing industry. Staff established later compliance deadlines for the commercial fishing vessel sector to enable them to maximize public funding opportunities. Staff acknowledges that to the extent the typical commercial fishing small business incurs costs, they may not be able to pass on costs to the consumer of the seafood product due to market pricing, and costs may be absorbed by the business. Staff cannot rule out the possibility of some business elimination if costs cannot be passed on to the customer or if passing through costs would result in a significant decrease in demand."

CARB staff discussed CFV's ability to compete with fishing operators outside of California in the following from the SRIA:

"The Proposed Amendments would increase costs for many commercial fishing vessels operating in RCW, and in some cases, could potentially make them less competitive against out of state or international fleets. CARB staff expects that commercial fishing vessel operators that harvest fish species that can only be caught in California would not face a competitive advantage or disadvantage relative to fishing operations ¹⁴² outside of California. Conversely, fishing operations that harvest species that can also be harvested outside of California may face a slight competitive disadvantage compared with out-of-state and international fleets. As provided in Chapter C.3.c., staff expects the average cost increase due to the Proposed Amendments per pound of fish harvested in California (assuming all costs of compliance would be passed onto the consumer) would be an estimated \$0.04 per pound. A cost increase of \$0.04 per pound is approximately 3 to 4 percent of the ex-vessel (which is the cost paid to the

angler at the time of first sale) dollar value of landings. However, commercial fishing vessels would not face in-use requirements until 2030; therefore, vessel owners who choose to comply early would have the option of applying for incentive programs such as the Carl Moyer Program, which provides funding for cleaner engines if emissions reductions are achieved ahead of regulatory requirements.”

Comment 2877.4: “Estimated replacement cost to update a vessel is laughably underestimated in CARB's proposed regulation. It is more than double the amount.”

Response 2877.4:

Please refer to Response 2588.2 regarding the CPFV vessel replacement cost CARB staff used in its economic analysis.

Comment 3023.5: “CARB has refused to conduct an appropriate vessel replacement analysis.

The only credible comment by CARB is the fact that they concede that business elimination is possible but continues to withhold any analysis that led to this determination or how widespread the business elimination will be.

CARB staff cannot rule out the possibility of some business elimination if costs cannot be passed onto the customer or if passing through costs would result in significant decrease in demand.

The broad-based consensus among the boating industry is that CARB has grossly underestimated the cost of vessel replacement, especially since no assessment can be made on engine technology that has not been developed yet. If this proves to be so and if some replacement vessels cost double to triple CARB's estimate, business elimination will be significant.

When CARB developed its economic analysis, the Standardized Regulatory Impact Assessment, it failed to evaluate the financial impact the regulations would have on CDFW license sales and revenue.

California has one of the largest coastlines in the country and for most residents, commercial passenger boats provide their only access to offshore fishing and marine life.

CARB also failed to evaluate the overall economic impact on coastal communities, and specifically their hospitality and tourism industry. For many coastal communities, passenger boats are the primary draw for tens of thousands of visitors each year. It is important to note that California is also one of the largest retail markets in the country for outdoor products, generating millions of dollars in sales tax revenue.

The elimination of Morro Bay/Port San Luis' sportfishing and whale watching fleet, in whole or part, would have a devastating impact on the regional economy and jobs. The same could be said for most every harbor and marina community from Southern California to the Oregon border.”

Response 3023.5:

Please refer to Response 2588.2 regarding the CPFV vessel replacement cost CARB staff used in its economic analysis.

See Response 834 regarding technology and feasibility.

See Response 1.3 et al. regarding access to offshore activity and marine life.

See Response 2.6 et al. for the economic impact of the 2022 Amendments to businesses and the California economy, the 15-day change made for CPFV, and CDFW license sales and revenue.

Comment 3105.2: "California Air Resource Board (CARB) should recognize the size and complexity of the District's CARB Compliance Project. The District is budgeting \$154,220,000 for the CARB Compliance Project. The project will replace four catamaran passenger vessels and repower three Spaulding class monohull passenger vessels, as necessary, to meet the requirements of the amended regulation. This project represents 53% of the estimated statewide cost, \$287,827,581, for monohull and catamaran ferries as outlined in CARB's Cost Analysis Workbook ISOR."

Response 3105.2:

Staff acknowledges the District's commitment to comply with the 2022 Amendments. CARB staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. Based on the CMA study, staff assumed 37% of catamaran ferries and 31% of monohull ferries would comply with the 2022 Amendments by vessel replacement. Staff also made assumptions for use of compliance extensions in the cost analysis. These assumptions and the estimated statewide cost for monohull and catamaran ferries are presented CARB's Cost Analysis Workbook "ISOR" version posted to CARB's website on September 21, 2021.⁶⁴ These assumptions can explain the District's budget of \$154,220,000 of compliance cost vs. the estimated statewide cost, which is based on a statewide average and not intended to represent the compliance costs of an individual business or entity.

In addition, the 2022 Amendments include other compliance options that may reduce the compliance costs, such as extension options that include renewable extensions available to vessel owners who face technological challenges to repower their vessels to the required standards and provide CARB with documentation showing that vessel replacements are not financially feasible for their business. Owners and operators may also be able to utilize low-use exceptions, ACE plans, ZEAT credits, or compliance extensions to comply. See Response 3158.1 et al.

⁶⁴ CARB, CHC Meetings & Workshops, <https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft/chc-meetings-workshops>.

Comment 3117.4: “(ii) Cost of Retrofit

Crowley estimates that a retrofit of the engines on its ATB fleet to comply with these requirements would be around \$9.55M per 550-class ATB (150,000 bbl. capacity) and about \$8.75M per 650-class ATB (180,000 bbl. capacity).

On a fleet-wide basis, the retrofit cost is estimated to be \$38.2M for the 550 fleet, and \$87.5M for the 650 fleet, a total of \$125.7M.

(iii) Cost of Replacement

The cost of replacing new engines in the vessels, to comply with the mandate of the proposed CHC Regulation Amendments, would be even higher. Crowley estimates that the replacement cost for the 550-class ATBs would be \$90M per vessel or \$360M for the entire 550-class Crowley fleet.

Crowley estimates that the replacement cost for the 650-class ATBs would be \$105M per vessel or \$1,050M for the entire 650-class Crowley fleet.

Were Crowley to replace the vessels in its ATB fleet to comply with the requirements of the proposed CHC Regulation Amendments, the total estimated cost would be \$1,410M.”

Response 3117.4: Staff acknowledges Crowley’s commitment to comply with the 2022 Amendments. Staff thanks Crowley for the data they provided that was included in the cost analysis. Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA. This represented the best available data when staff calculated the cost impacts of the 2022 Amendments. The sources of cost analysis inputs used to calculate ATB costs included stakeholder inputs (including Crowley), the CMA Study and CARB survey data. Staff posted a draft cost analysis workbook and assumptions on its website in September 2020, and the final cost workbooks used for the SRIA and ISOR in September 2021.

CARB staff’s cost calculations are a statewide average and not intended to apply to any specific business. For ATBs retrofit costs, Staff estimated the average cost for Tier 4 + DPF retrofit is approximately \$9.2 million (ATB Tug Tier 4 Retrofit Costs: \$4.7 million; ATB Barge Tier 4 Retrofit Costs: \$3.1 million; ATB Tug DPF Retrofit Costs: \$1.4 million; ATB Barge DPF Retrofit Costs: \$1 million), within the range of \$8.75 M and \$9.55 M provided by the commenter.

For ATBs Vessel Replacement costs, staff estimated the average cost for ATB vessel replacement about \$59.7 million costs (ATB Tug Replacement Costs: \$44.2 million; ATB Barge Replacement Costs: \$15.5 million), lower than the vessel replacement costs presented here. CARB staff expected most of the ATBs (93%, Appendix A of SRIA) will comply the 2022 amendments by Tier 4 and DPF Retrofit in part because the CMA study showed ATB barges have feasibility for repowering and retrofitting to the performance standard.

Comment 3125.2: “As an initial matter, it is unclear whether CARB has adequately considered the impact of these costs, the lack of any significant corresponding emissions reductions, or the potential increases in emissions associated with discontinuing services such

as Balboa Island Ferry's transportation of passengers and vehicles. Understanding the agency's consideration of cost impacts is difficult, due in part to the lack of clarity in CARB's SRIA.

For example, CARB estimated the following Zero-Emission Infrastructure costs for an individual charging facility:

- an upstream utility cost of \$2,096,885,
- a charging station cost of \$2,748,070,
- an installation cost of \$365,817, and
- a vessel-side infrastructure cost of \$751,129.2.

Adding those values together, the total estimated infrastructure cost is \$5,961,901. CARB also provides a table with these costs aggregated, to show each total cost for all the new charging facilities that would be required in California.³ Given CARB's estimate of 17 new charging stations throughout the state, the costs in the table should be 17 times the corresponding costs above, but they are not.

Even without clarity as to the exact cost Balboa Island Ferry would face under the new regulations, it is clear that the cost of the proposed amendments on our small business would be debilitating. Balboa Island Ferry has three small ferries with engines of 135 horsepower each. CARB estimates engines would come at cost of \$1,020 per horsepower, totaling \$137,700 for each ferry. According to CARB, labor and installation for the new engines would cost \$2,380 per horsepower if the ferries are able to be retrofitted and repowered and \$3,293 if Balboa Island Ferry's vessels are unable to accommodate the new engines and it must purchase entirely new vessels. Thus, the costs using CARB's assumptions could be anywhere from \$321,300 to \$444,555 for each ferry. The engine and installation estimates would result in a total cost of \$459,000 to \$582,255 for each ferry. Multiplying these figures by 3, the number of ferries Balboa Island Ferry owns, results in total costs ranging from \$1,377,000 to \$1,746,765. Balboa Island Ferry believes these estimates do not reflect the full cost of complying with the proposed amendments and that the actual cost will be closer to \$1 million per vessel, or \$3 million total.

Balboa Island Ferry also does not see any consideration in CARB's materials with respect to battery and electrification safety requirements that are or may be implemented by the U.S. Coast Guard, much less the likely costs associated with such requirements.

Further, Balboa Island Ferry would have to bear the cost of the infrastructure required to support the new ZEVs. As an operator of small ferries on the coast of residential Balboa Island, Balboa Island Ferry not aware of any other business or partner who would share in these costs. Thus, it would potentially have to bear the entire infrastructure cost on its own, which according to CARB could be as much as \$5,961,901 (see above). Even if the actual costs were a fraction of this sort of estimate, it would result in a total cost of compliance leagues beyond the budget of a small, family-owned ferry company.”

Response 3125.2: The 17 new charging stations non-amortized cost (17*\$5,961,901) is \$101,352,317. The cost listed in Table C-21, Amortized ZEAT Infrastructure Costs (2019 \$) of the SRIA is \$131,557,953, which include fuel savings and electricity costs. Staff estimated

there will be \$20,000,000 more in electricity costs than fuel savings. The costs for the 17 new charging stations as presented in Table C-21 is essentially the same as 17*\$5,961,901.

CARB staff has performed a detailed cost analyses of the 2022 Amendments that would apply to Balboa Island Ferry's short-run ferry vessels, which would be required to transition to zero-emission operations by December 31, 2025. Staff documented the inputs used to calculate cost estimates for short-run ferry vessels under the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The cost calculated in the SRIA represented the state average cost. The state average cost would be different from the cost from each individual business, like the commentator stated.

Staff acknowledges Balboa Island Ferry's commitment to comply with the 2022 Amendments. In situations where it is not technologically feasible to modify an in-use vessel and not financially feasible to pay for a replacement vessel by the compliance date, vessel operators can apply for compliance extensions.

See Master Response 1 in the Response to Comments on the Draft EA regarding safety.

Comment 3147.4: "Costs associated with tug and barge engine repowers- With regard to modeling and cost analysis Sause Bros. concludes the proposed "tug" costs noted in the Cal Maritime study grossly misrepresents the total costs involved for repowering ocean-going tugs. Conservative figures acutely under estimate the true costs associated with the changes to engines and vessel systems. The lack of suitable replacement vessel equipment with the ability to replace our fleet that meets customers vetting requirements will make taking vessels out of the fleet for retrofit very difficult from both an operations and cost standpoint. Costs vary significantly from vessel to vessel with those requiring significant changes reaching near the cost of a new build figure of 6 million. New tug construction for our ocean-going tugs is almost 3 times the estimated figure at \$16,300,000 (We have built two in the last year so these are very recent and correct figures). Finally, the replacement timeline is extremely aggressive. Sause Bros. recently launched a new tug under CARB's proposed timeline this new tug would be required to undergo major reconstruction to meet even basic Tier 4 requirements in a matter of 7 years after construction which is absolutely unrealistic and unacceptable. This requirement would erode the ability to compete with other transportation options in your area."

Response 3147.4: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. This represented the best available data CARB staff had at the time the costs were calculated, including stakeholder data received in response to CARB's draft cost materials which were posted on CARB's CHC Program website and communicated to CHC stakeholders via Gov Delivery notice in September 2020, several months prior to the SRIA development. For the Push/Tow Tug category, staff used two data points, \$16,300,000 (the cost Sause Bros. quoted here) and \$5.5 million per vessel (CMA study) to calculate the unit vessel new build cost (Appendix A, SRIA). The cost calculated in the SRIA represented the statewide average cost. The statewide average cost would be different from the cost from each individual business, like the commenter stated here.

Comment 3158.16 & 3378.17: “We question the numbers and the methods used to arrive at the Major Cost Inputs by Category in the SRIA. The data we provided included an estimate for a marine Tier 4 engine plus DPF. CARB staff deconstructed that estimate and arrived at a separate cost for the engine and a separate cost for the DPF. We communicated that it was highly unlikely that a company that had to upgrade an engine to a Tier 4 + DPF would upgrade the engine, then add the DPF in a separate transaction, but that is what the numbers seem to imply. The regulations should remain as is until there is actual technology and actual costs to attribute to the required changes.”

Response 3158.16 et al.: No changes were made to the Regulation Order in response to this comment. CARB staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. In the cost analysis, staff did calculate the cost for Tier 4 engine upgrade and DPF retrofit separately to account for different compliance scenarios (some vessels will need to do a Tier 4 engine repower and DPF retrofit separately to comply, while vessels that have a Tier 4 engine already will only need to install a DPF retrofit to comply). In the calculations, the cost for upgrading an engine to Tier 4 + DPF would equal the sum of the cost for upgrading an engine to Tier 4 and then retrofitting with a DPF.

Comment 3158.17 & 3378.18: “For the Push/Tow Tug category, the SRIA suggests that \$440/hp is adequate for replacement costs. For 3301 hp, that would equate to \$1,452,440 for the purchase of a push/tow tug replacement vessel. It would be enough to cover the replacement of a used tug with Tier 1 engines, but not even close to the \$8M - \$10M a new small tug (60’ or less) might cost, not to mention the time to build the new tug and the lost revenue waiting for the replacement. We question the results of the analysis in the SRIA as they relate to replacement costs. A larger tug may cost \$15M - \$18M to purchase new. The replacement costs need to be reviewed again with more industry input.”

Response 3158.17 et al.: In the SRIA, \$440/hp is the Unit Engine Capital Cost, there is also \$2767/hp for the labor and installation cost. The total unit vessel cost for a Tug / Tow vessel is at \$3207/hp. For a 3301 hp tug/tow vessel, the cost would equal to \$10 million, close to the \$8M - \$10M mentioned by the commenter. For the Push/Tow Tug category, staff used two data points, \$16,300,000 (the commentator stated here) and \$5.5 million per vessel (CMA Study) to calculate the unit vessel new build cost (Appendix A, SRIA). Staff posted the cost analysis workbook for industry input in September 2020 and incorporated data received into the cost analysis prepared for the SRIA and ISOR in 2021. The cost of \$16,300,000 is within the range of \$15M - \$18M cited here.

Comment 3158.27 & 3378.28: “Appendix A of the SRIA, Cost Analysis Inputs and Assumptions for Standardized Regulatory Impact Assessment should be reviewed thoroughly. There are very few industry stakeholders referenced in the analysis. The primary source of information seems to be the California Maritime Academy study for all vessel categories with 1-2 industry contacts (including RES) that have shared company costs, which is hardly representative of the industry as a whole. See Section B Data Verification Above”

Response 3158.27 et al.: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for

SRIA. The source of cost estimations included stakeholder inputs, CMA Study and CARB Survey data. These sources represented the best available data to CARB at the time when considering the cost effects of the 2022 Amendments. Staff posted the cost analysis workbook for industry input in September 2020 and incorporated data received into the cost analysis prepared for the SRIA and ISOR in 2021.

Comment 3158.29 & 3378.30: "The administrative and compliance fees are extraordinary. The first year of fees for our company is estimated to be at least \$23,004 and could be as much as \$91,904+. Note that the fees and compliance estimates were derived from the SRIA. Some of the fees such as opacity testing, record keeping and reporting may be more or less depending on the actual amount of time expended or the service provider used. The "Possible Additional Costs" would apply if we request a compliance extension (the amount noted would be for one vessel, the number would increase if we needed additional reports). It is not clear if the \$7500 regulation interpretation costs identified as a possible cost in the SRIA would be charged the first year of implementation. Added together, the total potential cost the first year is \$91,904. It is acknowledged that this number could be much less if we do not request a compliance extension for any of the vessels, but it should also be noted that it is possible this number could be much more if we request extensions for several vessels. These fees and costs could better be put towards upgraded engines and reducing emissions.

Administrative Fees – First Year

Annual Fee / Vessel	\$486 / vessel
Annual Fee/ Engine	\$396 / engine
Record Keeping & Reporting	\$200 / assumed
Vessel Labeling (Est Every 5 Years)	\$150 / assumed every 5 yearsto replace
Opacity Testing / Biennially	\$200 / assumed cost, biennially

Total Cost Based On Engines/Fleet Size \$23,004

Possible Additional Costs

Regulation Interpretation Costs	\$ 7,500*
Naval Architect Report	\$61,000**
Financial Feasibility Reports	\$ 400**
(Compliance Extensions)	

Total Estimated \$68,900

Estimated Possible Fees and Compliance Costs – First Year 2023 \$91,904

**SRIA pg 95 - Staff assumes this would be a one-time cost per fleet occurring in 2023, and represents administrative time needed to understand the regulation during the first year the Proposed Amendments would be in effect. Staff assumed a per-fleet cost of \$7,500 which represents 100 personnel hours with a personnel hourcost of \$75.*

***SRIA pg 93 - Staff assumed that the cost of a Naval Architect Report would be approximately \$61,000, and the cost of a Financial Feasibility Report would be \$400."*

Response 3158.29 et al.: The 2022 Amendments include annual compliance fees that would impose a direct, on-going cost to vessel owner/operators. The proposed compliance fees would help to offset staff costs of implementing and enforcing the 2022 Amendments, which

would involve activities such as receiving and processing vessel owner/operator and facility reports, including outreach and follow-up with regulated parties, reviewing and approving compliance extension requests, and statewide enforcement of the regulation. Collectively, these implementation and enforcement activities are required for CARB to assess the compliance of off-road marine engines and emissions control components sold in the State.

Staff developed a preliminary proposed fee schedule based on estimated costs of personnel, equipment, and administration for implementation and enforcement. The fee structure was built such that the total fees paid by harbor craft in the state equals the staffing cost for implementation and enforcement of the 2022 Amendments.

The costs listed in the commenter's "Possible Additional Costs" section are misinterpreted as required fees paid to CARB, which they are not. In the SRIA, these are described as estimates of costs that CHC businesses may incur in an effort to comply with the 2022 Amendments. Furthermore, the 15-day changes provide that third-party feasibility analyses, such as the CMA study, can be used to demonstrate a lack of technical feasibility for vessel repowers for wood, fiberglass, or fiberglass-reinforced plastic vessels, potentially lowering or eliminating the estimated costs of a "Naval Architect Report". This update can be found in Subsection 93118.5(e)(12)(E)3.b.iii. of the 2022 Amendments.

Comment 3158.30 & 3378.31: "We have questions about the fees and costs that we will incur.

- Why are there separate fees per vessel and per engine? Why not a single fee per vessel?
- Why is there no cap on the fees per company?
- Why is there not a sliding scale for company size?
- Why is opacity testing every two years? Why not a baseline test and a final test at the end of the program?
- Will there be a \$7500 regulation interpretation fee imposed in 2023? This is a large sum of money and should already be factored into the annual fees for program implementation.
- Vessel labeling – why do it? As one of our colleagues noted in previous correspondence, each CHC vessel has a unique identifying number already assigned (COR #, CDF#, IMO). Why add another along with its associated costs? The \$150 fee for the label is not the only cost that would be associated with that fee. Labor would be involved in ordering and affixing the label, likely doubling the cost and time taken to implement the requirement.
- Will any of the fees be put towards a more efficient tracking system? Right now reporting is very cumbersome. The DOORS (Off-Road Diesel Program) program has an electronic system that is much easier to use and keep information current and track compliance, we would suggest using the same system."

Response 3158.30 et al.: Because some auxiliary engines are already subject to Portable Equipment Registration Program (PERP) fees, the 2022 Amendments charge compliance fees for main propulsion engines only. However, some CHC, such as barges, operate with only

auxiliary engines. To ensure that all CHC are subject to fees, a vessel fee was built into the compliance fee structure.

Staff believes it is reasonable that fee payment is based on the number of main engines and number of vessels because the more vessels and main engines a fleet owns or operates, the more time and staff resources are needed to implement and enforce the regulation.

The fee structure also provides a 25% lower fee for single-vessel fleets, and a 50% higher fee for low-use engines (due to additional staff time required for processing low-use applications). The fee structure was built such that the total fees paid by harbor craft in the state equals the staffing cost for implementation and enforcement of the 2022 Amendments. Placing a cap on the fees per fleet would not adequately cover these staffing costs. Similarly, providing a sliding scale for fees based on company size, would not adequately cover staffing costs, and would cause difficulties in the future as companies grow or downsize fleets.

Opacity testing - CARB staff considers requiring opacity testing once every two years to be a reasonable frequency to detect malfunctioning emission controls considering engines are subject to audit and inspection at any time.

Regulation interpretation cost – this is not a required fee, this is an estimated cost per fleet that CARB staff assumes would occur in 2023, and represents the administrative time each business may need to understand and interpret how the requirements would apply to their business. Staff assumed a per-fleet cost of \$7,500 which represents 100 personnel hours with a personnel hour cost of \$75.

Vessel labeling – To increase reporting compliance, the 2022 Amendments require the use of Unique Vessel Identifiers (UVI). All CHC would need to have their identifier affixed to the vessel by January 1, 2024. Not every harbor craft has a unique identifier from the International Maritime Organization (IMO), USCG, CDFW, etc. When vessels do have an identifier, it is not always displayed, and CARB has no authority to require the display of non-CARB identifiers.

Compliance fees will be used to fund CARB staff positions for implementation and enforcement of the 2022 Amendments. This does not include development of a specific tracking system, however includes staff time for implementation tasks including developing a process to facilitate reporting.

Comment 3158.32 & 3378.33: “EA Mitigation 3-1

The costs of mitigation measures associated with construction projects related to the Proposed Amendments have not been incorporated into the SRIA. While the EA states that CARB does not have the jurisdiction to impose mitigation measures, any mitigation that is approved by a responsible agency will have a financial impact and should be included in the overall costs for the Proposed Amendments.”

Response 3158.32 et al.: The economic impacts of the 2022 Amendments presented in the SRIA were considered while developing the reasonably foreseeable compliance responses in the EA. The environmental effects of these reasonably foreseeable compliance responses were analyzed in the EA, which addresses the 18 resource topics required by the California

Environmental Quality Act (CEQA). The Draft EA provides mitigation measures that local land use and/or permitting agencies may incorporate to reduce the reasonably foreseeable potential significant environmental effects to less than significant. However, local land use and/or permitting agencies are responsible for the review and approval of any specific facilities and infrastructure, and whether these proposed mitigation measures would be adopted is speculative. The precise locations of the many components covered in the Proposed Amendments are unknown. Furthermore, attempting to predict decisions by entities regarding the specific location and design of infrastructure undertaken in response to implementation of the Proposed Amendments would be speculative (if not impossible) at this early stage, given the influence of many business and market considerations in those decisions. Due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects. Although CARB is responsible for adopting the 2022 Amendments, it does not have authority over all the potential infrastructure and development projects that could be carried out in response to the 2022 Amendments.

Comment 3165.3: "We are also concerned about the financial impact of the regulations on Santa Catalina tourism and the Long Beach and San Pedro hospitality industries. Although California is gradually recovering from the pandemic, recovery is much more prolonged in areas with a hospitality economy and with higher percentages of low-income residents.

As a destination that is 100% dependent on tourism, Catalina Island was especially hard hit by the pandemic by reason of State and local laws precluding leisure travel and mandatory spacing of passengers. Small businesses are especially vulnerable to changes that reduce foot traffic. Tourism spending represents 47.7% of Avalon's 2,629 total jobs. If the regulations are not modified, the decline in ferry passenger volume will be a final nail in the coffin for many businesses in Avalon and will inevitably lead to job losses, business closures and unneeded suffering. Additionally, many visitors who seek to travel to Catalina stay overnight in Long Beach and San Pedro before their trips to the island. The reduction in ferry availability will further discourage travel and spending by tourists to the greater South Bay region, undermining recovery and causing irreparable, permanent harm to our local economy as well."

Response 3165.3: See Response 2365.2.

The SRIA describes that industries that operate CHC would face costs and see net decreases in output growth and employment. To help, there are funding opportunities available to provide financial assistance and there are feasibility compliance extensions in the 2022 Amendments to allow for more time for compliance in cases of feasibility challenges which will help operators where vessel replacement cannot be afforded. Also, passenger carrying vessels, including ferries if subject to vessel replacement to meet emissions performance standards, would be eligible to receive an additional two-year feasibility extension (four extensions totaling eight years) due to potential impacts from the global situation that began in 2020. See Response 3158.1 et al. regarding compliance extensions, as well as ZEAT credits and ACE plan options that provide additional compliance flexibility.

Comment 3170.2: "2) Discrepancies, and misrepresentations, of inventory numbers and regional data are also clear. The initial use of the USCG registry to determine CHC vessel numbers was based upon a fundamental misunderstanding of "Hailing Port State". However, it does not end there. The July 7th release of the Standardized Regional Impact Assessment (SRIA) on the proposed amendments to the existing CHC regulation has a rather egregious omission of regional CERP data that should be addressed. The South Coast Air Quality Management District's (SCAQMD) Community Emissions Reduction Plan (CERP) is a locally developed emission reduction strategy, for disadvantaged portside communities, based upon locally generated emissions reporting. The July 7th SIRA explicitly states:

"Emissions generated from CHC are one of the primary areas of concern in a number of portside communities currently developing CERPs due to their substantial toxic and criteria air pollution emissions."

However, according to Chapter 3B within the WCWLB CERP, which represents Wilmington/Carson/West Long Beach, it asserts that, while Diesel Particulate Matter (DPM) was the main contributor of higher air toxic cancer risks within the SCAQMD basin, CHC vessels were not among the top contributors of PM_{2.5} or VOC. In fact, this document clearly states that overall NO_x emissions are expected to increase through 2029 due to "industrial and on-road mobile sources". It also makes note of the fact that the primary contributors of NO_x from the "Off-Road" sector remain Ocean Going Vessels (OGV's). While it does assert that Off-Road Sources account for 45% of NO_x emissions within the region, nowhere does it make the claim that CHC vessels are a primary contributor. Concluding that the CHC fleet is the primary source of air pollution and higher cancer rates from this CERP is baseless and can only be rationalized by grouping CHC vessels in with Ocean Going Vessels, while at the same time dismissing CARB's own projections of the impact of on road mobile sources."

Response 3170.2: A full response on the use of USCG data, along with consideration of hailing port, and alternatives to estimate population, is covered in the Responses 3118.13, 3118.17 et al., and 3121.37.

The SRIA definition of CHC emissions notes that CHC are one of the primary sources, not "the" primary source. The percent contribution for different regions by emission source is available online here:

<https://ww2.arb.ca.gov/criteria-pollutant-emission-inventory-data>⁶⁵

Emissions generated from CHC are one of the primary areas of concern in a number of coastal communities currently developing Community Emissions Reduction Plans (CERPs) due to their substantial level of toxic and criteria air pollution emissions. While, as the commenter points out, CERPs were not specifically mentioned in the SRIA, they are discussed in Chapter II of the Staff Report, which describes the problem the 2022 Amendments intend to address.

⁶⁵ CARB, Criteria Pollutant Emission Inventory Data, <https://ww2.arb.ca.gov/criteria-pollutant-emission-inventory-data>.

The 2021 CHC Emission Inventory used to support the analysis of the 2022 Amendments is an updated version of the previous emission inventories specifically for CHC released by CARB staff that are discussed in Appendix H of the ISOR. CARB's 2021 Emissions Inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. Master Response 3 in the Response to Comments on the Draft EA also addresses data accuracy and assumptions.

Regarding emission levels related to the 2022 Amendments and described in the ISOR, implementing the 2022 Amendments would reduce cumulative statewide emissions by approximately 1,610 tons of particulate matter less than or equal to 2.5 micrometers (PM_{2.5}), 1,680 tons of DPM, 34,340 tons of NO_x, and 2,460 tons of reactive organic gases (ROG), relative to the baseline. These reductions of emissions are attributable to CHC regardless of the emissions contributions of other sources of emissions.

Comment 3170.6: "6) There are a limited number of Subchapter M operators capable of handling the volume and scope of marine construction work along California's coast. The consequences of these regulations will not only cause immediate harm to tug companies operating in the maritime construction industry but will have compounding effects on those construction firms who contract tug and barge operators as well. The subsequent industry impacts of these CHG Amendments will be reflected through higher rates and possible delays of vital marine construction and management projects. Most notably, this will impact channel deepening/widening projects which must occur regularly for our ports to remain open to large container vessels carrying vital cargo. The few Subchapter M operators who will be left to perform this work will have a monopoly on this specific industry sector causing the prices of these large-scale dredging projects to increase. For construction firms that subcontract CHC operators for the use of their tugs and barges, rates will increase as well."

Response 3170.6: Some industries contain businesses that will see both increases in demand and increased direct costs. Costs to dredges were modeled as increased costs in the construction industry. However, the construction industry will also see increases in demand in the early years of the assessment for landside infrastructure. As a result, the construction industry is estimated to see slight increases in employment growth in the early years of the assessment, followed by slight decreases in employment growth in later years (see California Employment Impacts under Chapter E - Macroeconomic Impacts of the SRIA). Within the construction industry, the 2022 Amendments are not estimated to increase or decrease employment by more than 0.01 percent relative to baseline levels.

See Master Response 2 in the Response to Comments on the Draft EA.

Comment 3174: "As the California Air Resources Board (CARB) is set to consider unprecedented harbor craft engine emission regulations that stand to remove 174 sportfishing and whale watching boats from the sea, the Sportfishing Association of California (SAC) has released economic analysis that undermines CARB's contention that it is economically feasible for boat owners to replace their vessels. The analysis also reveals unintended consequences for the state's economy, fishery and conservation programs and significant declines in fishing participation rates. Hardest hit would be low-income communities."

Response 3174: Staff documented the Cost per Passenger for CPFVs for Inspected Vessels in Appendix C of the SRIA: Development of Industry-Specific Cost Metrics and Cost Impacts to Individuals for SRIA. The vessel replacement cost information was based on about 100 new vessel costs provided by the SAC and 1 new vessel cost from the CMA study. The range of CPFV vessel replacement costs is from \$180,000 to \$8 million. This represents the best available data when considering the cost effects of the 2022 Amendments. The \$4.6 and 5.7 million vessel replacement cost presented in Comment 3174 are within this range. The state average cost presented in SRIA would be much different from the cost for each individual case, which the commentator presented here.

Please refer to Response 3195.39 on how staff estimated the \$2.1 million vessel replacement value.

See Response 2.6 et al. regarding impacts of the 2022 Amendments to the State's economy and conservation programs, and Responses 810.1 and 2.6 et al. regarding the 15-day change made to provide a one-time, ten-year compliance pathway for CPFV that CARB staff expects will result in fewer vessel replacements. See Response 1.3 et al. regarding impacts to individuals including low-income communities.

Comment 3195.4: "More specifically, CARB estimates that replacement CPFVs will cost approximately an average of \$2.1 million but provides no supporting information to establish how they came up with the estimate. In stark contrast to CARB's estimate, a landing obtained estimates from a reputable ship builder. Those estimates show that new boats constructed to comply with CARB's rules would cost \$4.6 million (Class 1) and \$5.7 million (Class 2). So, in contrast to CARB's estimated ticket price increases of 27% for single day trips or 19% for multiday trips, a Certified Public Account determined ticket prices would need to increase 201% or 97%, respectively, to simply breakeven with no profit. And these scenarios require that a vessel owner not lose a single customer due to price increases that would be double or triple current levels."

Response 3195.4: Please refer to Response 2588.2 regarding CARB staff's estimation of vessel replacement costs in the SRIA. Also see Responses 810.1 and 2.6 et al. regarding the 15-day change made to provide a one-time, ten-year compliance pathway for CPFV that CARB staff expects will result in fewer vessel replacements and that will accordingly mitigate estimated ticket price increases if drop-in Tier 4 + DPF technology becomes available before the compliance extension expires in 2034, as CARB staff expects.

Comment 3195.17: "Economically, the profit margins for CPFV owners are slim, making it difficult to repower without outside funding. This is a driving reason why many of our operators diversify operations. The Carl Moyer Program (CMP) is not accessible to all owners. There are also industry fees that were not included in CARB's Standardized Regulatory Impact Assessment (SRIA). For example, in San Diego, the Port or City receive 5%, the landing that provides the piers collects 10-15%, the live bait companies receive 15%, all of which are paid by the vessel owner before receiving a "net" check from the landing accountant for passenger fare revenue. After the 35% fee collection is deducted, an owner still must make their boat loan, payroll, fuel, maintenance, insurance and advertising payments. This is a low-profit business for small businesses in the best of times.

In addition, other assumptions underlying CARB's SRIA are not borne out by experience, particularly as it relates to number of passengers and types of operations. Passenger capacities in the certificate of inspection are not the same as operational passenger capacity. Most of the vessels operate well below capacity, particularly outside certain peak times. This is true for local trips, where external conditions can drive down customer demand, and for long-range trips where trip-duration and customer experience drive reduced-capacity operations.

We realize CARB has made some attenuation to account for less than 100% operational capacity, but in reality, the true operational passenger loads and gross revenue streams are much lower than what CARB assumes. In addition, the net revenue streams after operational costs, including some overlooked, as discussed above, must also fund existing capital costs, repairs and maintenance before it can be added to cover additional costs. Moreover, days of operation outside of California, such as for vessels on multiday trips far from California shores, significantly diminish the assumed emissions impact of our fleet.

The CARB assumption of hundreds of thousands of customers on uninspected six-pack vessels vastly overstates actual passenger loads for purposes of projecting potential cost recapture through increased customer charges. For accuracy, passenger load assumptions must be tied to days underway and actual passenger load data as some may have very few days actually underway and nearly all will have many fewer actual days underway and passengers than the estimates assume.

Our Associations do not believe the cost impacts and physical feasibility (discussed more below) of implementing Tier 4 and diesel particulate filter (DPF) systems have been fully evaluated. This includes lack of evaluation as it relates to the actual cost of equipment install or vessel replacements as well as the impact on vessel capacity or the percentage increase recoupment cost that would have to be (or feasibly could be) passed down to passengers in order to "build new".

Critically, we must contemplate what price point will cause members of the public to forgo planning a fishing trip, and the collateral economic impact that has on surrounding businesses, because it is simply too costly. This variable is difficult to pinpoint, but we have received legitimate and powerful expressions of concern that the stability of the fishing tourism industry and its spending characteristics for ocean fishing activities have not been adequately considered. To characterize passenger cost increases as a viable mechanism to pay for engine repowers would require a much broader and more comprehensive study of the industry's revenue streams than what CARB has done. To that end, the Associations have provided its own analysis of the economic impacts of this proposed rule, as detailed below."

Response 3195.17: The economic impacts of the 2022 Amendments presented in the SRIA were considered while developing the reasonably foreseeable compliance responses. The industry fees would occur whether there is 2022 Amendments or not; therefore, staff didn't consider the industry fees in the SRIA for the purpose of evaluating the economic effects of the 2022 Amendments.

Staff documented the inputs used to calculate the cost per passenger for Inspected CPFVs in Appendix C of the SRIA: Development of Industry-Specific Cost Metrics and Cost Impacts to Individuals for SRIA.

Staff used RCW vessel activity percentage to account for vessel operating locations to exclude operation outside of California. Statewide, 83 percent of CPFV operation is within RCW. In some areas of the State, CPFVs may operate less within RCW (possibly in the San Diego region due to the proximity to international waters south of the California-Mexico border). For every region or local that has operation below the Statewide average, there is another region or local that has a greater amount of operation than the Statewide average.

Staff used best available data to calculate the CPFV passenger capacity. (Please refer to Appendix C of SRIA for the calculation of CPFV passenger capacity).

The cost inputs of implementing Tier 4 and DPF are documented in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The sources of cost estimations included stakeholder inputs, the CMA Study, and CARB survey. The vessel replacement costs are also listed in Appendix A of the SRIA.

Regarding concerns with Tier 4 engines and DPF technology, Tier 4 engines and DPFs do not operate at a higher temperature than engines certified to less stringent emission standards. Compared to some older-tier engines, Tier 4 engines operate with more efficient combustion and less waste heat is generated in the exhaust stream. Therefore, Tier 4 engines and DPF aftertreatment are not associated with hotter exhaust temperature potential than Tier 3 and earlier engines without aftertreatment. In addition, vessel owners and operators would be required to continue to meet USCG safety regulations applicable to their vessels, including but not limited to rules governing surface temperature and exhaust manifold insulation requirements within the engine rooms. See Master Response 1 in the Response to Comments on the Draft EA related to safety and CARB staff's assessment of feasibility of the performance standards.

In response to the comments received during the rulemaking process, CARB staff made 15-day changes to the 2022 Amendments. The 15-day changes included an additional extension option for CPFVs which would be a one-time, ten-year extension to meet the Tier 4 + DPF requirement by 2034 if all onboard engines are Tier 3 by the end of 2024. Under the proposed 15-day changes pathway, by 2034, staff expects technology options for Tier 4 + DPF engines to be available as drop-in replacements that would not require substantially modifying or replacing CPFVs as modeled under the original proposal, therefore there will be fewer vessel replacements expected for the commercial fishing industry, and CARB staff expects that sportfishing ticket price increases to cover compliance costs will be more modest than originally assumed in the SRIA.

Although the 2022 Amendments establish new emissions requirements for CHC, the amendments do not propose any changes to the Carl Moyer Program guidelines. The part of this comment referring to the Carl Moyer Program is outside the scope of this rulemaking; therefore, CARB is not required to respond. CARB staff will continue to coordinate with the Carl Moyer Program staff and communicate funding opportunities to stakeholders. See Response 1094.3 et al. regarding more information on funding.

Comment 3195.32: “SAC asked for separate cost numbers for inspected and six-pack vessels. CARB said these data were not separated. We believe that CARB should have the data to do these calculations separately. This is very important since the capital and operating costs for these boats vary substantially.”

Response 3195.32: CARB staff separated harbor craft into 18 categories in the emission inventory and has included all CPFV vessels in a single category.

CARB does not maintain separate subcategories in the reporting database or emissions inventory for vessels in the CPFV sector. CARB’s CHC emissions inventory used for this rulemaking shows the relative contributions of each vessel sector in the Statewide CHC inventory. (Please see response 3195.31)

CARB staff disagrees with the commenter that these two types of fishing vessels should be separated. First, CARB staff recognizes that most vessels are custom built and have slightly different operations or business models depending on their design. Rather than creating a category in the emission inventory for each sub-class of vessels, some level of grouping is performed. Because a variety of types – here 6-pack and larger inspected CPFVs – are included proportionally in the input data, there is no skewing of the final emissions, costs, or benefits of the regulatory requirements. Whether a 6-pack or inspected CPFV, both are licensed by the CDFW to perform sportfishing activities. On average, the 6-pack vessels operate fewer hours per year than the inspected fleet, and these activity values have been proportionally considered in the emission inventory. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply without upgrading to the proposed performance standards.

Comment 3195.39:

“1. CARB Acknowledges the CHC Rules will Require Full Replacement for Many Vessels, But Vastly Understates Likely Replacement Costs

By CARB’s analysis, an average inspected vessel with two 400 horsepower (HP) engines would cost approximately \$2.2 million to purchase new (including Tier 4 engines and DPF). Our Associations had previously recommended CARB contact a reputable shipyard to obtain a true cost estimate for building new vessels, but clearly CARB did not. A SAC member solicited such reliable projections from a reputable shipbuilder confirming its belief that the real cost is \$4.6 million to \$5.7 million depending on the class of the vessel. Replacement cost is another instance where the data is highly skewed by the combination of inspected and six-pack boats. Cost averaging across a more limited number of inspected vessels and a higher number of six-pack boats creates misleading, unreliable and ultimately uninformative data. Because the costs of these classes of vessels are so disparate, a separate analysis should have been performed for both inspected and six-pack boats. Finally, CARB links all of their vessel replacement costs to the HP of the engines; this again is an inaccurate way to assess such costs as it fails to capture the wide variety of costs related to the building of a new boat that are not related to and certainly not linearly correlated with HP. CARB’s inaccurate assessment of new vessel costs is a huge discrepancy that calls into question the entire financial analysis of the rule impacts on CPFVs.

2. CARB Overstates the Resale Value of CPFV Vessels Forced Out of Operation by the Proposed CHC Rules

CARB's costs overstate the resale value of vessels forced out of service and does not account for the payback of existing loans on boats. CARB's cost analysis assume that an existing vessel would have a resale value of \$465/HP. For the two 400-HP engine examples noted above, that would be \$372,000 for resale value. SAC's informed belief is this value dramatically overstates the resale value for inspected CPFVs, which are specially constructed for fishing in California waters. Most vessels are likely to have minimal to zero value except for scrap materials in California. Even outside of California, these boats would have little value due to the retrofits that would be needed to fish in other locations, whether in other states or other countries. Worse, and finally, if there were no resale value out of state or country, then the owners would have to pay additional costs for destruction or pay for it to be moored. Further, any resale or scrap value likely would simply be applied to reduce the debt on existing boat loans and be unavailable to offset vessel replacement costs. Again, this is a huge discrepancy that calls into question the entire financial analysis of the rule impacts on CPFVs

3. CARB's Assumptions Understate the Fare Increases Required for Vessel Cost Recapture

The ticket price increase analysis by CARB indicates that inspected vessels would need to increase ticket values by less than \$40/per person per day to pay for the cost of the rule. CARB's analysis significantly underestimates this cost. Independent cashflow analysis by a certified public accountant with experience in the maritime industry determined that ticket price increases of \$194 to \$362 per person per day for multi-day and day trips, respectively, would be required to accommodate the capital cost of a new vessel with a breakeven cash flow (no profit). This would be a 97% to 200% increase over existing rates, which is a value that is not attainable or sustainable in the market. In addition, since the size, passenger capacity, and ticket prices of individual CPFVs and their trips vary so much, any projection of increases in ticket price should be valued as a percent increase rather than fixed values.

4. The CHC Regulations Will Unfairly Create a Competitive Market Advantage for Gasoline-Powered CPFVs

The exclusion of gasoline-powered six-pack boats from regulation gives them a competitive advantage in the market. CARB did not evaluate the impact to the diesel-powered boats viability given that gasoline-powered boats are not regulated under the proposed rule and will not be spending millions of dollars for compliance. Because few diesel-powered six-packs operate full time, they should be removed from the regulation and considered under the recreational boating regulation that will be developed in the future.

5. CARB Failed to Assess the Market Impact of Competition from Mexico if CPFVs are Forced out of Business or Required to Absorb Anti-Competitive Regulatory Costs

CARB did not assess the competition of Mexican-based sportfishing on the San Diego area sportfishing operations where 50% of the inspected vessel fleet is located. If CPFV businesses are forced out of business due to the costs of the rule and/or of if they cannot provide competitive pricing, this would significantly increase competition from the Mexican sportfishing industry. Similarly, vessels on the North Coast may be impacted from vessels operating in Oregon or even Washington.

6. The CHC Rules Fail to Account for the Near-Term Double Jeopardy Impact of California's Announced Conversion to Zero Emissions by 2035 or 2045

The Newsom Administration has set a goal of the state becoming carbon neutral by 2045 and in a July 7, 2021, letter to the chair of CARB, the Governor asked CARB to examine if it was feasible to achieve this goal even sooner, by 2035. This would likely require all vessels to operate with electric motors supported by batteries or hydrogen. Boat owners question the merits of being required to build larger steel boats powered with new fossil fuel engines over the next two to eight years, or by 2034 at the latest, if they will be mandated under the Governor's proposal to replace their engines or boats once again when zero emission technology becomes feasible. This could create a worst-case scenario where CPFV owners will be required to scrap newly purchased boats and engines and replace their vessels and engines again for the second time in less than 20 years, far below the useful life of the vessels. If this is the ultimate goal for CARB, then the proposed rule is not the correct path forward. Instead, the CHC industry and the State of California should be focusing its resources into research and development for zero emission CHC boats.

7. The Cost Impact of Requiring Vessels to be Retired and Replaced will Lead to Many or Most of the CPFV Small Family Businesses to Close

Since over 80 percent of California sportfishing and whale watching boats are constructed of wood or fiberglass, CARB has indicated (see below) that the majority of inspected CPFVs will have to be replaced rather than upgraded or repowered. In fact, CARB notes in their economic analysis that they believe only one of the CPFV fleet can likely be retrofitted; all 173 of the other inspected vessels would need to be replaced. Should the regulations become effective January 2023 as proposed, CPFV owners will have to assess whether they can afford a new steel vessel with Tier 4 engines and DPFs, when this may be required based on the rule deadlines and the various extensions in the rule, and if the owners cannot afford it, when to go out of business.

'We, through this process, discussed the findings of the feasibility report from the California Maritime Academy and for some sectors are estimating that for vessels operating above the low use threshold that vessel replacement will be likely, especially the categories with wood or fiberglass vessels that can't be as easily reconfigured.' - Public Workshop for the Proposed Amendments to the Commercial Harbor Craft Regulations, March 16, 2021

Small businesses that have been here for decades would go out of business. CARB appears to agree as stated in their documentation

'...(CARB) staff cannot rule out the possibility of some business elimination if costs cannot be passed onto the customer or if passing through costs would result in significant decrease in demand." - CARB, Standardized Regulatory Impact Assessment, July 7, 2021

CARB's analysis of the impact of this fact is severely lacking, as it does not:

- Estimate how many businesses will go out of business, including small businesses.
- Assess the impact of the business closing on jobs.
- Assess the impact of business closing on the economy of the ports and coastal communities, including taxes, fees, etc. CARB received an October 26, 2021, letter from various business coalitions, which expressed these same sentiments about the drastic effects this rule would have on these communities.
- Assess the impact of business closing on tourism.
- Assess the impact of business closing on fees paid to federal and state agencies who license and regulate these boats. This would include fees that fund the CDFW's conservation programs, which rely on these fees.
- Assess the impact of business closing on recreational fishing participation rates, and fishing license revenue that fund fishery and conservations programs administered by the California Department of Fish and Wildlife."

Response 3195.39: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA. This represented the best available data when staff calculated the cost impacts of the 2022 Amendments. The sources of cost analysis inputs used to calculate ATB costs included stakeholder inputs, the CMA Study and CARB survey data. Staff was able to obtain the costs for vessel replacement, engine repowering and engine retrofitting for a few vessels. The statewide vessels have a wide range of engine horsepower. Staff believes using \$ per hp is the most accurate way to estimate statewide costs. Also see Response 3158.16 et al.

Although the SRIA did not account for the payback on existing loans, Staff accounted for vessel resale revenue in the SRIA as part of the direct costs. The vessel resale revenue was considered as the cost savings due to revenue from reselling the old vessel. Staff assumed that existing vessels would be sold outside of California, ranging from \$335 to \$3,819 per HP (see Table VI in Appendix A of the SRIA, for details).

Please see Appendix C section h. Calculation of Cost per Passenger for Commercial Passenger Fishing Vessels for more information on how Staff calculated the increase in ticket price per day for single day-trip vessels, multi-day trip vessels, and 6-pack vessels. As the commenter noted, since the size, passenger capacity, and ticket prices of individual CPFVs and their trips vary so much, staff's ticket price increase was based on multiple data for the different vessel categories.

The CPFV vessel replacement cost in the SRIA was based on the cost of approximately 100 new vessels with data provided by the SAC and 1 new vessel cost from the CMA study. The

range of the costs are from \$180,000 to \$8 million. The \$4.6 and \$5.7 million cost is within the range mentioned by the commenter.

Please refer to Response 3195.32 on why these two types of fishing vessels should not be separated.

Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The sources of vessel resale value are based on stakeholder inputs. This data represented the best available data available to CARB at the time when considering the cost effects of the 2022 Amendments, and included feedback received from stakeholders in response to the draft cost documents CARB staff posted on its website in September 2020.

Staff documented the Cost per Passenger for CPFVs for Inspected Vessels in Appendix C of the SRIA. The cost increase represented the state average Cost per Passenger because of the 2022 Amendments. The state average cost increase would be much different from the cost increase from each individual case, which the commentator presented.

In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer CPFV replacements. See Response 2.6 et al. regarding the 15-day change.

See Response 3195.50 regarding zero-emission technology and requirements.

Please refer to response to comment 2.6 et al. for the economic impacts of the 2022 Amendments to the Commercial Passenger Fishing industry, and Response 2228.4 regarding impacts to CDFW.

See Master Response 2 in the Response to Comments on the Draft EA.

Comment 3195.46: "C. CARB's Economic Analysis (SRIA) is Incomplete

If CARB underestimated the cost of new boats and the ability to increase prices, what was CARB's analysis on the impact to small businesses?

How did CARB assess the impact of business closings on jobs?

How did CARB assess the impact of business closing on the economy of the ports and port communities, including taxes, fees, etc. and where is that analysis?

How did CARB assess the impact of business closing on tourism and if so, which tourism organizations were publicly noticed and consulted?

Governor Gavin Newsom has made restoring the half of 1.2 million hospitality and tourism jobs lost during the COVID-19 pandemic an economic priority. Has CARB consulted with the Governor's economic advisors to determine the potential job loss associated with fewer commercial passenger boats in service?

How did CARB assess the impact of businesses closing on fees paid to federal and state agencies who license and regulate these boats?

Did CARB contact any passengers that commonly use these boats, especially those from disadvantaged communities, to confirm that they could afford these increases in ticket prices? Where is the information regarding that exercise? If such efforts were not undertaken, why not?

How has CARB in its analysis accounted for the fact that most boat owners have existing loans on their boats that would have to be paid off regardless of if the boat has no or limited resale value?

How does CARB differentiate its consideration of new regulations for cargo ships and other large harbor crafts owned by large corporations and publicly traded companies contrasted against passenger fishing boats operated by small family businesses?

What concerns are considered by CARB when implementing regulations that disproportionately impact small business owners?

Carl Moyer Funds can only be used for engines and not vessel replacement. Given the boat owners are being asked to purchase highly advanced vessels with costly equipment and technology, should Carl Moyer Funds be expanded to include vessel replacement?

CARB has suggested CPFV owners could still use grant funding to offset costs. Did CARB provide a detailed analysis of how this would work, when the owners could use these funds, how this would work with the time extensions in the rule, whether vessels might still have to be replaced after grant funding was used for engine repowers, and whether there was enough money available?

CARB acknowledges that if a boat is no longer compliant, it will have no resale value in California. How confident is CARB that a boat owner can finance a new boat without the ability to sell their existing boat at market value (their businesses most valuable asset)?

Did CARB consult with any boat lenders to determine what barriers boat owners could experience as they try to finance a new boat? If not, why not?

Existing boats may have little value in other states/countries, especially if the market is flooded with new vessels. Is there market demand for 174 used passenger boats? If so, in what states and countries did CARB determine a sufficient market is available?

What has CARB done to ensure sufficient grants and funding opportunities are available to these relatively small number of family-owned businesses?

What has CARB proposed to support the ancillary businesses that depend on CPFV operations, so they are not put out of business in the name of exceedingly modest theoretical (and hypothetical) public health gains?"

Response 3195.46: Staff made a 15-day change to the Regulation Order to provide a one-time, ten-year compliance option for CPFV in response to stakeholder comments and concerns such as these (see Response 1.7 et al.). CARB staff is also providing the following responses to the comments and questions raised by this commenter.

CARB staff did not meet with tourism organizations to assess potential impacts of businesses closing on tourism, and CARB staff did not meet with the Governor's economic advisors to

discuss the potential job loss associated with fewer commercial passenger boats in service. However, the statewide economic effects including changes to jobs are quantified in the macroeconomic analysis in Chapter E of the SRIA and summarized in Response 2.6 et al.

See Response 2228.4 for the impacts of fees paid to federal and state agencies. Also see Response to Comments 3174-1 and 3195-9 in the Response to Comments on the Draft EA regarding CDFW license fees.

CARB staff communicated with Environmental Justice groups representing disadvantaged communities numerous times during rulemaking development.

The cost analysis did not quantify paying off existing loans as payment for existing vessels is assumed to be included in the baseline.

CARB set the maximum feasible and cost effective-emissions standards for each category of CHC which includes both small businesses and businesses owned by large corporations and publicly traded companies. Large vessels including cargo ships that meet the definition of OGV are covered by CARB's regulations for OGV instead of CHC.

This rulemaking is not proposing changes to the Carl Moyer Program guidelines, therefore comments regarding changes to the Carl Moyer Program are beyond of scope of this rulemaking.

Regarding grant funding, the 2022 Amendments do not contain elements regarding funding, and the cost analysis and SRIA (ISOR Appendix C-1) did not assume any grant funding would be used for compliance with the 2022 Amendments. However, grant funding is available (see Response 1094.3 et al.) and CARB staff is continuing to work to communicate and maximize grant opportunities for CHC. CARB staff hosted a webinar on January 12, 2022 with staff from multiple incentive programs who presented information and engaged in discussions with stakeholders. CARB staff also posted a funding program fact sheet on the CHC Program website in 2021 and will continue to provide funding information to stakeholders.

The funding programs available to CHC may include the Carl Moyer program, the Volkswagen Mitigation Trust, the Proposition 1B goods movement program, the CORE voucher program, CAPP, and other opportunities. Compliance pathway options are also available (see Response 3158.1 et al.).

CARB staff did contact several banks that provide vessel loans in early 2022, but did not reach any additional conclusions specifically from that research. CARB staff expects fewer vessel replacements will be needed if CPFV owners choose the one-time, ten-year compliance extension pathway, as discussed in Response 1.7 et al.

Regarding resale of vessels, the 2022 Amendments do not prevent vessels owners or operators from selling noncompliant vessels outside of the state. With regard to market demand, CARB did not conduct a specific analysis on market demand. However, CARB did

discuss the expectation that vessels would be sold out of state on page D-14 in the Final EA⁶⁶.

Also see Response 1.2 et al. regarding the global situation that began in 2020 and Response 1.3 et al. regarding the impacts to individuals.

Comment 3195.66: " 1. What are the actual costs to business owners to purchase a new, compliant vessel?"

To establish whether CARB's expected costs to purchase a new, compliant vessel are correct, a Certified Public Accountant (CPA) with marine industry experience evaluated construction bids for two commercial vessels that were designed to comply with CARB's proposed rules (attached). The Class 1 and Class 2 bids (attached) reflect two of the most common passenger sportfishing vessels found off the California coast, with a Class 1 vessel that can be configured for whale watching, eco-tourism and scuba diving excursions.

CARB's Standard Regulatory Impact Assessment (SRIA) economic analysis estimated the average replacement cost for a commercially inspected passenger sportfishing vessel to be \$2.1 million, financed with passenger ticket price increases of \$39.78 (or 27% increase) for a single-day trip and \$37.05 (or 19% increase) for a multi-day trip on a per passenger per day basis. Their economic analysis does not reveal how CARB assessed the \$2.1 million value, whether they sought bids from reputable boat builders and if they applied the projected construction costs to real boat operating budgets. To ensure reliable, defensible data are used to assess the true impacts of the proposed amendments, H&M Landing of San Diego did exactly that.

Two construction bids were received by H&M Landing (attached). One was for \$4.6 million to construct a 65 ft one-day vessel (Class 1, suitable for day fishing trips, whale watching and SCUBA excursions) and \$5.7 million for an 80 ft multi-day vessel (Class 2). These costs are magnitudes greater than CARB's estimate of \$2.1 million per vessel. According to the CPA report, based on the operating budgets of current H&M landing boats, to break even, businesses replacing a Class 1 boat would have to increase prices for a one-day fishing trip from \$180 to \$542 (201% increase) and a new Class 2 boat that provides multi-day fishing trips would have to increase its prices from \$200 to \$394 (97% increase). These price increases are significantly higher than the 19% to 27% increases anticipated by CARB.

The CPA's analysis also underscores the financing challenges facing boat owners. The CPA notes that 20% - 40% is a commonly required down payment within the marine industry. Considering existing non compliant boats will have no resale value in California and the glut of boats to be sold will depress markets outside of California, businesses will find it difficult to sell their current boats and secure down payments on new vessels, thus raising the risk for banks. Banks would have to demand higher down payments and/or higher rates. Without feasible financing, many vessel operators will shut down.

⁶⁶ CARB, Final Environmental Analysis, Page D-14, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/chcfinalea.pdf>.

2. Will any price increases required to purchase new vessels impact participation?

It is noteworthy to mention that CARB assumes CPF vessels would maintain their current passenger loads in the face of price increases. Expecting passenger demand to remain unchanged in face of price increases is wrong. At Southwick Associates, we have examined impacts on fishing license sales resulting from price increases for over 40 states. Price increases can include the price of the actual license, fuel prices (boat and auto), the hassles associated with poor weather, and more. The following are examples from these previous analyses:

Oklahoma:

- a. In 2019, a \$1 (or 5%) increase in resident annual fishing licenses would result in a loss of 7,924 anglers and a decline in license sales of 1.2%:
 - The statistical models custom built for Oklahoma's license sales show that a 100% increase in price would cause resident participation to decrease over 22%, while a 200% increase would result in a 44% decline in participation.
- b. A \$1 increase in Oklahoma's nonresident annual fishing license would result in a loss of 1,342 visitors, which equates to a 4% decline in sales.
 - Further statistical modeling shows that a 100% increase in price would cause non-resident participation to decrease to nearly zero.

Tennessee:

- a. In 2018, a 10% increase in the basic fishing/hunting license² would result in a loss of 6,149 anglers which means a 2% decline in license sales:
 - Tennessee's statistical models show that a 100% increase in price would cause resident participation to decrease 20%, while a 200% increase would result in a 40% decline in participation.
- b. A 10% increase in Tennessee's nonresident annual fishing license would result in a loss of 1,482 visitors, which equates to a 4% decline in nonresident license sales.
 - Further statistical modeling shows that a 100% increase in price would cause non-resident participation to decrease 37%.

Oregon:

- a. In 2013, a \$1 (or 3%) increase in the price of the resident annual fishing license would result in a loss of 5,711 anglers which means a 2.3% decline in sales:
 - The statistical models custom built for Oregon license sales show that a 100% increase in price would cause resident participation to decrease to 74%, while a 200% increase would decrease participation to nearly zero.
- b. A \$1 increase in the \$106.25 annual fishing license would cause a 1.1% sales decline.
 - Further statistical modeling shows that a 100% increase in price would cause non-resident annual license sales to decrease to nearly zero.

- Considering Oregon's annual nonresident fishing license is priced similar to a one-day CPF vessel trip, we tested the effects of CARB's suggested price increases. At these levels, Oregon's annual license sales would fall over 40%.

Results of other states are also available. Across the board, the statistical models show that price has a significant effect on fishing participation. While small increases might be absorbed, increases of 97% to 201% as required for operators to replace CPF vessels would cause annual passenger volume to decline severely. Even if CARB's regulatory costs could be passed on with a 19-27% passenger price increase, the proposed regulations could reduce passenger volume by nearly half, per the Oregon data.

Please note that it is possible to measure the effects of price increases on California's license sales. The necessary license data are in possession of the California Department of Fish and Wildlife. CARB's economic analysis (SRIA) does not refer to any effort to conduct this basic statistical assessment."

Response 3195.66: In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer CPFV replacements. Therefore, the compliance costs for CPFVs will be reduced.

Staff documented the Cost per Passenger for CPFVs for Inspected Vessels in Appendix C of the SRIA: Development of Industry-Specific Cost Metrics and Cost Impacts to Individuals for SRIA. The cost increase represented the state average Cost per Passenger because of the 2022 Amendments. The state average cost increase would be much different from the cost increase from each individual case, which the commentator presented here.

Please refer to Response 3195.39 on how staff estimated the \$2.1 million vessel replacement value.

Please refer to Response 2.6 et al. on the estimated impacts of the 2022 Amendments to the state economy.

Please refer to Response 2228.4 for the impacts the state agencies.

See Response to Comment 3174-1 in the Response to Comments on the Draft EA.

Comment 3195.70: "What is the expected impact to the State economy?"

Per page 110 of CARB's economic analysis (SRIA), July 7th, 2021:

"...However, staff cannot rule out the possibility of some business elimination if costs cannot be pass on to the customer or if passing through costs would result in a significant decrease in demand."

Earlier, it was shown that many customers will stop using CPF vessels if prices are increased. Any assumption that costs can be fully or even partially passed along to customers without decreasing participation is simply wrong. If boat operators were in a position to charge higher prices, just like any business, they already would have. Without a doubt, price

increases will harm CPF vessel operators and likewise the local communities that depend on them.

Decreased participation means decreased spending on CPF vessels, which in turns harms the economy:

- As shown earlier, the average fee paid per customer is estimated at \$287.75 while the average number of paying customers per vessel is 1,986 annually.
- With 174 vessels in service, 345,564 passenger trips occur annually.
- With an average of \$287.75 per trip, annual fees paid to access CPF vessels in California is \$99,436,041.
- According to the most recent economic impact data for marine fishing in California, for each dollar spent by anglers, the following multipliers take effect: .000015 jobs are supported
- 38 cents in income is generated for California residents
- \$1.59 in value-added, or contributions to GDP, are provided
- And according to an additional source, 14 cents in state tax revenues”

Response 3195.70: In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer CPFV replacements. Therefore, the economy-wide impact of the 2022 Amendments will be reduced for CPFVs and there will be less impacts to small business.

Please refer to Response 2.6 et al. on the estimated impacts of the 2022 Amendments to the state economy.

Comment 3195.71: “In response to new engine emission rules proposed by the California Air Resources Board (CARB) that will likely require commercially inspected passenger boats to be replaced in the coming years, H&M Landing sought a cash analysis to determine the financial impact of different scenarios that would result from the purchase of a Class 1 (65 ft) vessel or Class 2 (80 ft) vessel.

This analysis is in response to the CARB statements in the Standard Regulatory Impact Assessment (SRIA) and associated cost spreadsheet that replacement vessels are projected to cost an average of \$2.1 million and can be financed with passenger ticket price increases of \$28.03/day (or 19% increase) and \$26.09/multi-day (or 14% increase).

Our firm was retained to answer the following questions for each vessel:

1. What would be the impact to cash flow using CARB’s suggested ticket price increase percentages?
2. What increase in ticket prices would be required for a vessel owner to achieve break-even cash flow (no profit)?

Methodology:

From a reputable ship builder, the client secured bids for commercial passenger vessels that commonly operate off the coast of California, a Class 1 65 ft local/coastal (day trip) vessel and a Class 2 80 ft multi-day vessel. The ship builder believes that the new vessels would

meet the requirements of CARB's proposed rule and be able to accommodate the mandated engines and equipment when approved for marine use.

The cash flow analyses are based on estimated operating expenses provided by client of in-service vessels and existing daily customer rates. There are two vessels under consideration, one a \$4.6 million build cost related to a Class 1 coastal local experience vessel with an expected 15-person capacity; the Class 2 multi-day vessel would be a larger offshore multi day vessel with estimated construction cost of \$5.7 million with an expected 25-person capacity. We used the year 2018 as the base year, a period that proceeded the COVID-19 pandemic that required operations to be suspended, and assumed vessels operated at 100% of capacity on all trips.

The cash analyses are based on constant dollars with no inflation factor built in. Increasing costs are based on statutory rates or market forces. Inflation impact on revenue and expenses are expected to net to near zero and have not been included in the cash analyses to provide a more simple straightforward effective way to demonstrate the cost of acquiring major new fixed asset vessels to cash flow.

Each vessel analysis has two cash flow schedules the first based on a 14% price increase in the year of acquisition for the vessel and a 1% increase in real dollars each year thereafter ending at 10 years. The second analysis demonstrates the pricing levels necessary to break even on cash flow for the acquisition. While breakeven is not an acceptable long-term business model it does provide guidance to the expected pricing increases that would be necessary to reset a fleet with new qualified vessels.

The financing terms on the acquisition of new vessels are expected to be at 6% interest over a 20-year repayment life with a down payment of approximately 10% to be sourced from a potential resell value of existing equipment. These terms are likely optimistic for several reasons. First, the resale value of existing vessels may be difficult given that they will not meet new emission standards and have no resale value, requiring the vessels to be transferred overseas or across the U.S. Second, our experience demonstrates that banks are unlikely to finance 90% of the cost of a new vessel given down payments of 20%-40% are common for these types of vessels. Third, the analysis assigns no cost to the pay-off of a capital note on the existing vessel and it is unlikely that the full resale value of the existing vessel would be fully available for a down payment as it would be the security for the existing note. And lastly, the vessel owners will be required to convert the vessels to zero emission well within the useful life of the capital investment at an unknown but potentially significant cost meaning banks will want the loan to mature over a shorter period or will further reduce the percentage of the vessel that can be financed.

Conclusion

H&M Landing (current vs. future prices)

[See Appendix B for Table provided in Comment #3195.71]

Class 1 Coastal Vessel (65 feet): As the cash flow analysis demonstrates the \$4.6 million boat acquisition with 10% deposit would produce a negative cash position over 10 years of

\$2,826,304. For this boat to breakeven, passenger prices would have to increase threefold or be increased by 200%.

Class 2 Multi-Day Vessel (80 feet): The cash flow results based on the \$5.7 million purchase with a 10% deposit would produce a \$3,047,600 negative cash at the end of 10 years and for this boat to breakeven, passenger prices would have to nearly double or be increased by 97%.

The four cash flow analyses attached to this letter demonstrate the trajectory business owners will face given high cost of replacement vessels. Modeling suggests revenue increases to support the cost of new build will be extremely aggressive.

In my experience with marine recreation, the sudden and significant cost increase would both reduce the pool of those that can access the service and the frequency of returning customers. This challenge will be even greater for the most common smaller passenger vessel category (Class 1), notably half to one-day coastal vessels that serve anglers, whale watchers, and divers. This would affect the ability to finance a vessel as would the uncertainty regarding future investments necessary to achieve zero emissions. Banks may view any extensions granted by CARB negatively as it would shorten the period of capital recovery and thereby require additional increases in ticket prices to achieve sustainable revenues.”

[analysis details attached as appendix]

Response 3195.71: CARB staff appreciates the additional information provided during the 45-day comment period. CARB staff used the best available data in its analyses, including data incorporated from stakeholder input received on the detailed draft cost documents posted in September 2020, one year prior to the 45-day notice for this rulemaking. CARB staff documented the data and assumptions used to calculate the cost per passenger for CPFVs in Appendix C of the SRIA: Development of Industry-Specific Cost Metrics and Cost Impacts to Individuals for SRIA. The cost increases were calculated as a statewide average as described in the methodology and do not represent the actual cost to any specific business.

In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments (see Response 1.7 et al.). As a result of the 15-day changes, staff expects there will be fewer CPFV replacements than under the original proposal. Therefore, CARB staff expects the economy-wide impact of the 2022 Amendments will be reduced for CPFVs if they choose the one-time, ten-year compliance pathway as provided in the 15-day changes.

The commenter notes that CARB staff’s cost analysis does not include paying off existing vessel loans. That cost was not quantified because the cost of existing vessels is included in the baseline.

Comments speculating that CPFV will be required to convert to zero-emission before the end of their useful life are outside of the scope of this rulemaking. The 2022 Amendments do not contain any zero-emission requirements for CPFV.

Comment 3261.3: “CARB staff have also made a number of assumptions about the CPFV fleet and existing emissions that appear problematic:

Optimistic vessel replacement costs that are not supported by recent price quotes, even for smaller vessels;”

Response 3261.3: Please refer to Response 3195.39 on how staff estimated the vessel replacement value.

In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer CPFV replacements. Therefore, the economy-wide impact of the 2022 Amendments will be reduced for CPFVs.

Please refer to Response 810.1 regarding the 15-day change.

See Response to Comment 3261-2 in the Response to Comments on the Draft EA.

Comment 3261.4: “CARB staff have also made a number of assumptions about the CPFV fleet and existing emissions that appear problematic:...

- the ability to sell existing vessels out of state to recoup some capital when attempted sales of these vessels have not been successful to date;
- an elastic demand that can absorb additional costs through increased ticket prices when, based on industry experience, small price changes have led to significantly reduced ticket sales, pointing to a highly inelastic demand”

Response 3261.4: See Response to Comment 3261-2 in the Response to Comments on the Draft EA.

Comment 3263.3: “There are serious shortcomings in CARB's statements and claims as presented in its economic analysis (SRIA). The State of California needs to carefully consider the potential impacts before making decisions that can potentially harm businesses, their employees and California residents who want to access the ocean.”

Response 3263.3: CARB staff made no changes based on the received comment. CARB disagrees with the comment and the commenter has not identified a specific objection and therefore CARB cannot specifically respond.

Comment 3301: “Real-world cost studies by a reputable ship builder, CPA, and industry economists concluded vessel construction costs are close to three times staff's estimate and will range from 4.6 to 5.7 million dollars for CPFV. Our economist forecasts fare increases will range between 97 and 201 percent, or up to \$395 per passenger fair. No business can sustain their current ridership with these increases.”

Response 3301: Please refer to Response 3195.39 on how staff estimated the vessel replacement value.

In response to the comments received during the rulemaking process, staff made 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer CPFV replacements. Therefore, the economy-wide impact of the 2022 Amendments will be reduced for CPFVs.

Please refer to Response 810.1.

Comment 3377.5: *“Compliance Cost*

CARB has relied on the California Maritime Academy’s (CMA) report “Evaluation of the Feasibility and Costs of Installing Tier 4 Engines and Retrofit Exhaust Aftertreatment on In-Use Commercial Harbor Craft” to determine feasibility of Tier 4 retrofits, including DPFs. In their analysis, the cost to do this work was \$2.81 million. Upon review of the report by an independent engineering firm, it was discovered that, because of its narrow scope, the CMA report vastly underestimated this cost. In reality, it costs \$3.7-\$4.5 million to repower a single vessel and it would cost \$16-\$24 million to purchase a new tug – something that an operator would be required to do if they could not comply. This significant investment would devastate smaller companies, who recently spent money to retrofit their vessels to meet the current CHC standards – an investment that was made with the expectation that the vessel would be used for its full useful life of 20-25 years before normal repowering.

We acknowledge that there are multiple opportunities to apply for government funding to help manage these unexpected costs, however, there are not enough grant dollars enough to assist with mitigating the cost of compliance for the entire tugboat, towboat, and barge industry in California. Also, these grants are extremely competitive and do not fund maritime projects like our industry. There is no way for the maritime industry to comply with this unfunded mandate without help. We urge the Board to provide a stipulation that some guaranteed financial assistance will be provided if this rule goes through.”

Response 3377.5: Staff documented the inputs used to calculate cost estimates for the Proposed Amendments in Appendix A of the SRIA. The sources of cost inputs included data received directly from stakeholders, the CMA Study, and other sources as noted in Appendix A. CARB staff used the best available data, including stakeholder input on its draft cost documents posted to CARB’s website in September 2020. For the push/tow tugs cost estimates, staff relied on both the CMA Study and stakeholder inputs.

Comments asking CARB to provide funding are outside the scope of this rulemaking. See Response 1094.3 et al. regarding funding. Compliance extensions and flexible compliance pathways are also available, see Response 3158.1 et al.

s. Data Validation

Comment 1021.2: “Staff has failed to interview stakeholders, business owners and the public at large that utilize these vessels. They do not have accurate financial data with respect to cost of operation nor do they have information from shipyards or vessel builders to make an accurate assessment of what the real impact will be to the customer to offset the cost of new construction. Staff has yet to recognize the overall financial impact recreational angling has to the California economy and the jobs it provides.

We ask that staff do the following to provide you, the decision makers, with accurate data so that a reasonable decision can be made:

- Conduct an economic impact study of vessel owners, using accurate data, to understand their current business with respect to margins and if those margins will support vessel replacement.

- Conduct an economic impact study of coastal communities, manufacturers, and hospitality using accurate data to understand the impact sportfishing and eco-tourism has on each sector.
- Conduct a feasibility study, with respect to retrofitting existing vessels with proposed technology to reduce emissions, and where retrofit is possible, understand how passenger loads will be reduced to accommodate the additional equipment and how this will impact profitability.
- Conduct emission studies to accurately assess what the CPFV fleet contributes in terms of emissions inside regulated California waters based on existing equipment and operational characteristics.
- Survey competitive shipyards to gain a realistic understanding of vessel replacement cost with proposed emission standards.

...

We ask you place CPFV's back into the category of Commercial Fishing vessels for the sake of rulemaking, or that you conduct the requested research prior to passing rule and help create a path towards compliance."

Response 1021.2: During the development of the Proposed Amendments to the CHC Regulation, CARB staff conducted numerous meetings with members of impacted communities, environmental justice advocates, industry stakeholders (including vessel operators, seaports, terminal operators, industry associations, engine manufacturers, and emission control technology manufacturers), and public agencies (including Air districts, USCG, and CPUC). Meeting formats included public workshops, work group meetings, community meetings, and meetings with individual stakeholders. Detailed list of the public workshops, meetings, phone calls, conferences, site visits, and vessel tours can be found in Appendix F in ISOR document.

CARB held its first public hearing on November 19, 2021 and second board hearing on March 24, 2022 to consider the 2022 Amendments. To respond to the Board's direction, CARB staff carefully reviewed the public comments, followed up with stakeholders who submitted information into the rulemaking record, and hosted a public webinar on January 12, 2022 to receive input on staff's proposed response to Board direction. Additionally, staff held over 30 individual meetings and dialogued with over 80 stakeholders by phone or email, presented to local air district board members, traveled in-person to meet with environmental justice and industry stakeholders, and reevaluated options for streamlining feasibility evaluations for vessel owners requesting compliance extensions.

With regard to approved technologies that could be used to achieve the requirements of the 2022 Amendments, Appendix E of the ISOR contains a review and assessment of the feasibility associated with the performance standards included in the 2022 Amendments. As discussed in Section IV.C of Appendix E of the ISOR, the careful analysis of many overlapping vessel design requirements must be evaluated before a feasibility determination can be made. Standards for vessel design are addressed in Title 46 of the CFR. These vessel design standards address vessel stability, trim characteristics, buoyancy, and vessel structural design limit requirements. Regarding retrofitting of existing vessels, any additional aftertreatment

devices must be consistent with gross register tonnage requirements to maintain USCG compliance. CARB staff recognizes that some vessels may not be able to be reconfigured to accommodate cleaner engines and emission control devices and has accordingly accounted for a fraction of vessel replacements as indicated in Appendix C-1 of the ISOR. Additional information on technical feasibility is contained in Appendix E of the ISOR.

For information regarding reduced passenger capacities, see Response to Comment 3165-2 in the Response to Comments on the Draft EA.

Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617. The SRIA evaluated the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, Gross State Product, and output. Staff does account for operational costs and costs to build new vessels in SRIA. Staff used best available data to calculate these costs. The cost inputs are documented in Appendix A of the SRIA: Cost Analysis Inputs and Assumptions for SRIA. The sources of these cost estimations included stakeholder inputs, the CMA Study, and CARB survey.

The 2021 CHC Emission Inventory used to support the analysis of the 2022 Amendments is an updated version of the previous emission inventories that was specifically developed for CHC. The 2021 CHC emissions inventory released by CARB is discussed in Appendix H of the ISOR.

CARB's 2021 Emissions Inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. The potential health benefits correlated to these emission reductions are described in Section V.B of the ISOR. In 2023, under the current regulation (baseline condition), CPFV RCW emissions account for about 10% of statewide CHC RCW emissions.

Staff analyzed the shipyards impacts from the 2022 Amendments in the EA analysis. In general, existing shipbuilding businesses across Oregon, Washington, and California are expected to have capacity to repower, retrofit, and build new vessels in response to the 2022 Amendments, so no additional construction of existing shipyards is expected.

Staff would not place CPFV's back into the category of Commercial Fishing vessels for the sake of rulemaking as CPFV did make contributions in terms of emissions within RCW. However, staff has modified compliance extension E3 for CPFVs in the 15-day changes to the 2022 Amendments. Under the 15-day changes, there will be fewer vessel replacements for CPFVs (please refer to Response 810.1).

Comment 3118.5: "If CARB is not willing to redesign the rulemaking in favor of this better approach, we urge the agency to suspend the rulemaking until it addresses the underlying flaws and known errors in the regulatory package. AWO has repeatedly pointed out that CARB has inflated the vessel inventory and will present unassailable evidence showing that towing vessels that have failed to report to CARB account for only a small percentage – less than 2.3% – of total hours in CARB waters. We will also demonstrate that the health risks claimed by CARB are overstated, at minimum by the overestimation of the vessel inventory, but more likely to a much greater extent due to unaddressed flaws in the modeling itself. It is reckless for CARB to move forward with a rule that could have devastating impacts on

California's maritime supply chain when it is so clear that its foundation is based on inaccurate data and an unvalidated model."

Response 3118.5: The 2021 CHC Emission Inventory used to support the analysis of the 2022 Amendments is an updated version of the previous emission inventories that was specifically developed for CHC. The 2021 CHC emissions inventory released by CARB is discussed in Appendix H of the ISOR. CARB disagrees with the statements that "CARB has inflated the vessel inventory" and "the health risks claimed by CARB are overstated."

CARB's 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. The potential health benefits associated with these emission reductions are described in Section V.B of the ISOR.

CARB staff used vessel activity hours and the hour meter data in the CARB reporting database to calculate the vessel activity. CARB data comes directly from reporting from AWO members and other confirmed tow/tug owners and operators.

Please refer to Response 3118.6 for the towing vessel population and activity estimation in CARB's CHC emissions inventory and Heath Risk Assessment for CHC emissions.

Comment 3121.2: "CARB has misrelied a United States Coast Guard (USCG) database that has led them to the false conclusion that there is a 39% underreporting of CHC emissions to CARB. Ramboll data has shown us that for the towing industry that number is only 2.3%."

Response 3121.2: Please refer to Response 3118.5.

Please see the Response 3118.6 regarding CARB staff's responses to comments submitted by AWO regarding the towing vessel inventory and HRA.

Please also see the Response 3121.16 for towing vessel population estimates.

Comment 3121.7: "INACCURATE AND GROSSLY OVERINFLATED VESSEL POPULATION DATA

The U.S. Coast Guard database used by CARB to determine the vessel population affected by the rule was designed to track the ownership and regulatory status of a vessel and provides no insight or information into where a vessel is operated. CARB's use of this database overstates the population of tug and towing vessels to reach the false conclusion that there is a significant number of vessels that are not reporting their engine hours to CARB.

We have shown ample evidence in previous comment letters and multiple meetings with CARB personnel to validate our position that emissions from vessels who have not reported their hours is only a fraction of the scaling factor CARB used to inflate the emission inventory. We have pointed out to CARB staff on these occasions that overcounting number of tug and towing vessels operating in California overinflates health risk assessment that is the justification for this rulemaking. We have explained the basis for the discrepancies and told the agency how it can obtain accurate data through the use of readily available AIS data that will show not only every vessel that enters CARB regulated waters, but when those vessels

are actually underway. Inexplicably, CARB has done nothing to revise its figures or update its model. Indeed, at the CHC Workshop #4 held on March 16, 2021, CARB acknowledged that the agency was aware that its vessel counts did not accurately reflect the actual number of vessels in the applicable airshed, but informed attendees, without further explanation, that CARB would not be revising the vessel count numbers in the draft regulation. These technical and procedural errors jeopardize the entire basis for the regulation and subject it to heightened legal scrutiny.

For the purposes of this comment letter our trade organization, AWO, contracted with Ramboll, a third party consulting engineering group, to conduct an independent assessment of the number of tug and towing vessels operating in California and the likely impact of emissions from those vessels. Using Automatic Identification System (AIS) data for 2019, Ramboll was able to account for every tug and towing vessel within California waters during that year. The AIS data affirms that CARB has significantly overcounted the size of California's tug and towing vessel fleet. Specifically, Ramboll found that 200 tug and towing vessels operated within a 100 nm of the California Coast, not the 229 tug and towing vessels estimated by CARB. Additionally, the CARB model assumes that non-reporting vessels operated with the same number of hours as reporting vessels. From the AIS data we can determine the number of hours when the vessels were moving, which when compared to hours reported to CARB, proved to be a reliable predictor of main engine hours. We were able to isolate the vessels CARB shows as having filed reports from those vessels that have not. The non-reporting vessels averaged only 18% of the hours of the reporting vessels. This means that the total unreported hours are just 2.3% of the total reported hours, not the 29% that the CARB scaling factors estimated.

[See Appendix B for Table provided in Comment #3121.7]

Ramboll ran estimates based on these accurately captured tug and towing vessel hours and found that NO_x and PM emissions were only 72% and 62%, respectively, of the figures the improperly inflated CARB's model produced. We suspect a similar over estimation may exist with the other vessel categories of harbor craft and given that CARB's assumption was that 39% of the CHC were not reporting, the potential for a massive overestimation of the impact of all harbor craft is possible."

Response 3121.7: No changes to the Regulation Order were made in response to this comment. CARB disagrees with the statement that "CARB acknowledged that the agency was aware that its vessel counts did not accurately reflect the actual number of vessels in the applicable airshed, but informed attendees, without further explanation, that CARB would not be revising the vessel count numbers in the draft regulation."

CARB staff has worked diligently with AWO, its members, and consultants throughout the rulemaking process to review the towing vessel inventory reported by industry to CARB's CHC Reporting database. CARB staff has reviewed and searched for the CARB reported vessels for active operation in RCW, updated the inventory to remove two vessels that sunk and inactive vessels that permanently moved outside of RCW. CARB staff has created new

towing vessel subcategories at AWO's request to provide better resolution on the relative contributions to the overall towing vessel emissions inventory from the various towing vessel sectors. CARB staff has shared redacted versions of the CHC Reporting Database towing vessels with AWO and their maritime and engineering consultants. Follow up work with AWO's consultant search data verified to CARB staff that there were 33 non-CARB reported towing vessels found to have operated in RCW in the time period between 2018-2020. This verifies to CARB staff that there was and still is a significant reporting deficit in the interstate towing vessel sector. See Response 3121.16 detailing the CHC inventory methodology outlined in Appendix H of the ISOR.

CARB's 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. CARB staff believed the CARB vessel counts accurately reflect the actual number of vessels in the applicable airshed. Please see Response 3423 for CARB's towing vessel population estimates.

See Response to Comment 3121-1 in the Response to Comments on the Draft EA.

Comment 3121.16: "Errors in the vessel population data used by CARB, that drastically overstates the towing vessel population operating in CARB waters. AmNav and AWO have repeatedly demonstrated to CARB staff that the U.S. Coast Guard vessel database, the foundation of all their vessel counts, has no information related to a vessel's utilization or location of operation. Further we have shared with CARB real-time sources of vessel operating data that could provide accurate usage data. Sources that showed:

- Of the 219 towing vessels CARB used as operating in California, only 73 of those vessels were operated in California.
- That the 219 vessels did not include vessels registered out of state, that were operating in California.
- That CARB asserted, based on the false number of 219 towing vessels in their database, there was a 48% under-reporting of towing vessel emissions in California. Accurate real-time data refutes this claim and shows that any errors in reporting are likely insignificant.

It defies logic and scientific rigor that CARB is continuing to promote a regulation based on such an erroneous data set that has created incorrect and invalid conclusions."

Response 3121.16: CARB disagrees with the statement that "CARB is continuing to promote a regulation based on such an erroneous data set that has created incorrect and invalid conclusions." The 2021 CHC emissions inventory released by CARB is discussed in detail in Appendix H of the ISOR. The 2021 CHC Emission Inventory used to support the analysis of the 2022 Amendments is an updated version of the previous emission inventories that was specifically developed for CHC. CARB staff did not utilize USCG Merchant Vessel Database CA homeport data to determine the towing vessel population utilized for the inventory population. Instead, CARB Air Quality Planning and Science Division staff utilized a combination of datasets using the methodology described below to determine the towing

vessel population in the updated emissions inventory. The scalar value of 0.23 was determined by the percentage of towing vessels found by AWO's towing vessel AIS data search effort that are not reported in CARB's CHC Reporting Database. CARB staff did not utilize the 142 vessel population supported by AWO's AIS vessel search as a final population number because it failed to find 83 additional vessels that were reported in CARB's CHC Reporting Database and simultaneously showed that 23% of the vessels found by AWO had not been reported to CARB as required under the current CHC Regulation. Therefore, an inventory population of 142 would underestimate the number of towing vessels. Instead, CARB staff utilized a combination of different datasets (detailed below) from multiple sources and a population scalar to account for the non-CARB reported vessels to determine the final number of 229. At the time (Summer of 2020) 229 vessels was equivalent to the number of towing vessels reported by operators in CARB's CHC Reporting database. A redacted version of this population data was shared by with AWO by CARB staff in the Summer of 2020, so AWO is aware of the significant towing vessel CARB-reporting deficit and the 67 CARB-reported vessels their search did not locate.

CARB's 2021 emissions inventory estimates were based on the best available data as described in ISOR Appendix H. For towing vessels, CARB staff used a combination of AWO data, CARB reporting data, Seaport data from Oakland, Los Angeles, and Long Beach, and a non-reported vessel population scalar based on those vessels found in the AWO data from the time period of 2018-Summer of 2020 but not reported in CARB's CHC Reporting Database. CARB staff worked diligently with AWO to update the towing vessel population in CARB's CHC Reporting Database and removed 16 vessels found to have move to U.S. Gulf of Mexico or East Coast operating locations. CARB staff worked diligently with AWO and California towing vessel operators to obtain main engine fuel consumption and load factor data, created new towing vessel subcategories at AWO's request, and updated the towing vessel main engine load factors used in the CHC towing vessel emissions inventory. CARB staff derived the towing vessel population via the following calculation:

142 from AWO (Marine Exchange) + (83 from CARB database – 16 reported to CARB but now permanently out of California) / (1-0.23) = 229 tugs statewide, where 0.23 is the non-reporting fraction of the 142 vessels provided by AWO.

Comment 3121.19: "INACCURATE AND GROSSLY OVERINFLATED VESSEL POPULATION DATA

AmNav directs you to the comments contained in the AWO comment letter in Appendix A. As the U.S. Coast Guard will attest, the database used by CARB to describe the population was designed to track the ownership and regulatory status of a vessel and does not provide any insight or information into where a vessel is operated. CARB staff has acknowledged this fact and yet continues to use the numbers in the database to justify the conclusions of the study and the proposed rules. These are not insignificant errors. The vessel count includes:

- 146 towing vessels that did not operate in CARB waters during the last three years.

- Excludes 69 towing vessels that were registered out of state but did operate in CARB waters.
- Includes 33 vessels that did not have a valid Certificate of Documentation, either having retired it or having it marked as “Not in Operation.” There is no evidence these vessels operated in CARB waters during the last three years.

Using real-time sources from the Marine Exchanges in both San Francisco and Los Angeles Long Beach, based on Automatic Identification System (AIS) and regulatory reporting requirements, we demonstrated the flaws in the vessel counts that CARB was using for towing vessels. Most importantly we clearly showed that there was no justification for CARB to inflate the towing vessel numbers by 48% for under reporting. AWO and AmNav shared all our data with CARB in the spirit of full transparency and would welcome the opportunity to assist CARB in obtaining accurate vessel information. But we are confused and dismayed that while CARB openly acknowledged these errors in the CHC Workshop #4 held on March 16, 2021, they informed the attendees of the workshop that they would not be revising their vessel count numbers in the draft regulation.

To that end AmNav joins with AWO to urge CARB to:

- Develop an accurate vessel population data set using available means of gathering real-time vessel operating information and emission profiles. This should be done for all vessel categories.
- Amend the study utilizing the corrected data set to determine the industry specific impact and need for regulation.
- Redraft the Proposed Regulations to reflect the conclusions of the new study.

Moving forward with regulation without correcting errors in the underlying data set will undermine the legitimacy of the regulatory process.”

Response 3121.19: CARB staff made no changes to the Regulation Order based on the received comments. CARB disagrees with the statement that “CARB openly acknowledged these errors in the CHC Workshop #4 held on March 16, 2021, they informed the attendees of the workshop that they would not be revising their vessel count numbers in the draft regulation.” Please refer to Response 3121.7, Response 3121.8, and Response 3121.5 for the estimation of vessel population.

Comment 3158.3 & 3378.4: “The data provided to justify the Proposed Amendments may be faulty and is not representative of the industry.”

Response 3158.3 et al.: No changes were made to the Regulation Order in response to this comment.

Staff used the best available data to quantify the emission inventory and cost estimates for the 2022 Amendments.

The 2021 CHC Emission Inventory used to support the analysis of the 2022 Amendments is an updated version of the previous emission inventories that was specifically developed for

CHC. The 2021 CHC emissions inventory released by CARB is discussed in Appendix H of the ISOR.

CARB's 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. The potential health benefits associated with these emission reductions are described in Section V.B of the ISOR.

Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA. Cost estimations included stakeholder inputs, CMA Study and other sources. This represents the best available data when considering the cost effects of the 2022 Amendments.

Please also see Master Response 3 in the Response to Comments on the Draft EA regarding accuracy of assumptions and estimates.

Comment 3158.14 & 3378.15: "The number of CHC vessels has been a point of contention with the maritime industry since the Proposed Amendment was introduced. Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results details how CARB Staff determined their numbers, but does not address the numerous questions from the industry about possible discrepancies.

The number of vessels is the basis for many of the studies and conclusions, particularly about health and environmental impacts. Until the number of vessels can be verified, the conclusions drawn in the Standardized Regulatory Impact Assessment (SRIA), Draft Environmental Analysis (EA) and the Staff Report: Initial Statement of Reasons (ISOR) regarding health outcomes may not be valid."

Response 3158.14 et al.: CARB staff made no changes to the Regulation order in response to this comment. See Master Response 3 in the Response to Comments on the Draft Environmental Analysis.

See Responses 3121.16 and 3121.7 in this FSOR.

See Response to Comment 3158-3 in the Draft EA.

Comment 3158.15 & 3378.16: "R.E. Staite provided CARB Staff with proprietary data about the costs to upgrade our vessels to Tier 4 + DPF technology. We shared our rough order of magnitude information with the CARB Staff in one letter and an e-mail (October 30, 2020 and December 18, 2020), as well as what we thought an estimated loan would cost us if we had to obtain one for vessel upgrades. This information was incorporated into the Standardized Regulatory Impact Assessment (SRIA), Appendix A, Table II-A: Major Cost Inputs by CHC Category. It should be noted that our data was referenced on 17 pages of the SRIA and along with the California Maritime Academy (CMA) study and the Sause Bros (tug category), as a primary source of data for the major cost input for the following vessel categories: Push/Tow Tug category, the Dredge category, Other Barge category and Workboat category.

We clearly stated that since we did not have any cost information or data for DPF, that the numbers were estimated and were rough order of magnitude. None of our notes regarding the numbers being estimates and rough order of magnitude numbers are noted in the document. It is inconceivable that such a small data set was allowed to be representative of these major vessel categories. Reviewing all the categories there appears to be very little industry participation. Since there is not adequate industry data provided in the study, the results are not representative of the true costs of the CHC Proposed Amendments.”

Response 3158.15 et al.: Staff documented the inputs used to calculate cost estimates for the 2022 Amendments in Appendix A of the SRIA. The cost estimations included stakeholder inputs, CMA Study and other sources. CARB staff posted detailed draft cost documents in September 2020 for stakeholder input, and used the limited stakeholder input it received to update costs for the SRIA and ISOR in 2021.

Staff did use R.E. Staite as the source of data for the major cost input for the following vessel categories: Push/Tow Tug category, the Dredge category, Other Barge category and Workboat category. For Push/Tow Tugs category, the costs provided by R.E. Staite are higher than those in the CMA study, for Dredges and Workboat category, the costs provided by R.E. Staite are lower than CMA study, for other Barge category, the costs provided by R.E. Staite were the only data source. Thus, these data sources represent the best available data when considering the cost effects of the 2022 Amendments, and were used to estimate statewide costs.

Comment 3195.9: “Further, CARB has not been responsive to input from vessel owners to improve the data CARB is using to justify the health benefits of the rule. For example, CARB has ignored the request to use the logbook data that captures the operational location of each vessel and is electronically logged daily by the captains under threat of criminal penalty. Instead, CARB uses a less accurate method to make assumptions about a few vessels and inaccurately extrapolates that profile to the fleet statewide. This leads CARB to assume vessels operate 83% of the time in regulated waters. However, using logbook data, a vessel owner determined they operated in regulated waters an average of only 16.28% of the time over a five-year period. This is also not a one boat outlier as over 50% of the inspected CPFV operate out of the same area in a similar manner.

To attempt to conceal this fatal error, CARB suggests that uninspected six-pack (6 passengers or fewer) boats should be combined with inspected CPFVs for looking at the emissions, impacts, and benefits from the rule. Certainly, there are more six-pack boats than inspected CPFVs, but most are not subject to the rule as they have gasoline engines. In fact, there are roughly 40 six packs that operate full-time, and it is believed that most of those are gasoline engines. The balance of diesel six-packs would likely meet the low use thresholds; however, their emissions are still included in the CPFV category and skewing the data.

By combining vessels that operate differently, utilizing fatally flawed modeling, ignoring constructive input, and not providing transparent access to data, CARB is purposely overstating emissions contributions from inspected CPFVs to obfuscate that the proposed rule is not based on adequate information, and is not cost effective or technologically feasible. In addition, the rule creates significant barriers to social equity for ocean access.

Because of these and other flaws, CARB cannot determine that the proposed rule creates a positive cost-benefit and that there are no reasonable alternatives. Especially, when using accurate operational data would demonstrate that nearly all CPFVs operate distant from CalEnviroScreen identified environmental justice communities.”

Response 3195.9: The CDFW logbooks referenced by this commenter do not provide enough data for CARB to calculate operating time within 24 nm across the fleet. This commenter attached the logbooks for their vessel, but without firsthand knowledge, and a clear documentation of daily engine operating records of how the vessel is typically operated on different types of trips, calculating runtime for each engine would not be possible. The commenter and other vessel operators have not provided daily trip-level information that is sufficient for CARB to calculate the geographic distribution of emissions from the fleet using CDFW logbook data.

CARB staff disagrees with the commenter that these two types of fishing vessels should be separated. CARB staff has separated harbor craft into 18 categories in the emission inventory and has included all CPFV vessels in a single category. Because a variety of types – here 6-pack and larger inspected CPFVs – are included proportionally in the input data, there is no skewing of the final emissions, costs, or benefits of the regulatory requirements. Whether a 6-pack or inspected CPFV, both are licensed by the CDFW to perform sportfishing activities. On average, the 6-pack vessels operate fewer hours per year than the inspected fleet, and these activity values have been proportionally considered in the emission inventory (Please also see Response 3195.32). Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply without upgrading to the proposed performance standards. CARB staff provided data for the combined category of CPFVs – costs, emissions, and benefits.

The requirements of the 2022 Amendments do not depend on how much time a vessel spends near a DAC, but rather if they are homeported or service a regular stop within 2 miles of a DAC. For example, if a vessel is homeported in a DAC, but transits away from the DAC for most of its operation time, it is still subject to the lower low-use thresholds, lower operational thresholds for compliance extensions, and must consider effects on DACs in ACE applications.

CARB’s 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. CARB staff has met numerous times with industry groups since 2018 to develop the proposed inventory. See Master Response 3 in the Response to Comments in the Draft EA regarding accuracy of assumptions and estimates.

CARB staff disagrees that the 2022 Amendments are not cost-effective. CARB staff provided a cost-benefit analysis for the 2022 Amendments in the SRIA. The monetized health benefits of the 2022 Amendments (\$5.3 Billion) would far outweigh the cost of the compliance costs (\$2 billion).

See Master Response 5 in the Response to Comments on the Draft EA regarding CARB staff’s analysis of feasibility of the requirements. See Response 1.3 et al. regarding social equity of ocean access. See ISOR Chapter X for CARB staff’s analysis of regulatory alternatives.

Comment 3195.69: “Please note that data does exist pinpointing where anglers live. License data held by the California Department of Fish and Wildlife contains purchasers’ zip codes. These data can be used to generate plot maps showing where anglers live, including the percentage living in lower income neighborhoods. Such assessments have apparently not been conducted, yet should be to better determine the potential burden placed on lower income communities.”

Response 3195.69: Staff has prepared this SRIA for the 2022 Amendments, pursuant to the requirements of SB 617. The SRIA evaluated the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, Gross State Product, and output.

CHC typically operate in areas with a high percentage of low-income and minority populations who are disproportionately impacted by higher levels of diesel emissions. These communities would directly benefit from localized reductions of NOx and PM emissions from the 2022 Amendments.

Comment 3195.72: “For example, CARB supplies emissions information or links to it on October 27, 2021. When SAC tried to obtain the information, we followed CARB’s instructions and downloaded several zipped files with a “7z” extension. To extract the files, we had to install special software as Windows or MAC were not able to extract. Once we got the files, the main one is a large (57 MB) database file that has an “Rdata” extension. We have been struggling to open this file to review the data. We tried to download several open-source programs to do so, but to no avail. Even our IT departments could not figure it out, and were, of course, leery of multiple open-source programs having to be downloaded just to open one file. There are some expensive software packages that may be useful, but we hesitate in spending the money not knowing if they will even work. Moreover, once opened, it is unclear how easy it will be to work with this file, query the data, and get what we want since no one here has ever used this software before.”

Response 3195.72: The emission inventory is fully documented online in a pdf format.⁶⁷ It is both easy to access and provides the most comprehensive and detailed information on the inventory. For any parties looking to understand and comment on the CHC inventory, this is the primary method, offering a step by step walkthrough of sources, computations, results, and methodology. Additional files are provided to ensure full transparency.

CARB used the program 7zip to compress files. 7zip is free software to compress files on the internet. There are Windows based alternatives, however none of the popular windows options are free, and would require stakeholders or other interested parties to buy a program simply to unzip the emission inventory files.

The inventory and input files were provided in Microsoft Access, one of the simplest and most commonly-used database systems in the world. It requires limited or no knowledge of

⁶⁷ CARB, Staff Report: Public Hearing to Consider the Proposed Amendments to the Commercial Harbor Craft Regulation, Appendix H, 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf>.

database administration and runs off tables which can individually be converted to Excel within seconds. It is also the only database software that comes with packages in Microsoft Office. Every database alternative (MySQL, SQL Server) requires significantly more knowledge and/or time to install and operate. The data itself is too large to include only in Excel.

Additional information (processing of the data in Access to reflect the proposed rule) was released in the statistical program R. R is a free-to-use open source statistical package, and is a common programming language. The Rdata file is simply a database that includes the baseline emission inventory output from Access, converted from the output comma-separated values (CSV) file. The R file includes codes that determine emissions from the proposed rule scenario for CHC. It is used to model compliance choices, however the full input and forecast methodology is included in the Access model (as well as the emission inventory writeup).

Comment 3261.5: “[CARB assumes] that CPFVs can pass along the increased costs to customers but commercial vessels cannot, without data to show that commercial fishing vessels cannot otherwise absorb the costs;”

Response 3261.5: Certain types of CHC operations in California are captive and unique to the State. For example, CPFV activities often target a certain geographic region that cannot be relocated to other regions outside of the State. Regardless of whether vessels are homeported in or outside of California, vessel operators still need to comply with the same requirements when operated in RCW. Therefore, they can establish new prices to recover the costs.

Conversely, commercial fishing operations that harvest species that can also be harvested outside of California may face a competitive disadvantage compared with out-of-state and international fleets. Therefore, facing the competition outside of California, commercial fishing cannot otherwise absorb the costs by establishing new prices, because non-regulated commercial fishing vessels are not similarly impacted by compliance costs and can therefore likely increase sales at the expense of regulated commercial fishing vessels.

See Response to Comment 3261-2 in the Draft EA.

Comment 3261.7: “CARB staff have also made a number of assumptions about the CPFV fleet and existing emissions that appear problematic:

- (6) using the Automatic Identification System for calculating what portion of CPFV activity occurs within 24 nautical miles of the California coast when the majority of the fleet is not required to use the system and spends most of its time outside those bounds;
- (7) using a baseline number of inspected CPFVs that appears to overestimate the actual number compared to uninspected “six-pack” charter boats, which have a very different fuel burn rate;
- (8) using acknowledged faulty data on the estimated time spent in regulated waters with a four- to five-fold error range and, hence, potentially far less air quality and health benefits than estimated;”

Response 3261.7: CARB's 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. CARB staff has met numerous times with industry groups since 2018 to develop the proposed inventory.

The updated inventory methodology used data reported between 2010 and 2019 to project future baseline and control emission scenarios for each vessel type, engine type (i.e., main engine or auxiliary engine), and air pollutant. The methodology accounts for the potential for errors in operator-reported data by considering reported cumulative non-resettable hour meter data, reported annual activity (hours and fuel), and measured AIS vessel data to more accurately determine the fraction of emissions from vessels within RCW. For full details of the 2021 Emissions Inventory for CHC, see Appendix H of the ISOR.

CARB staff has separated harbor craft into 18 categories in the emission inventory and has included all CPFV vessels in a single category. Because a variety of types – here 6-pack and larger inspected CPFVs – are included proportionally in the input data, there is no skewing of the final emissions, costs, or benefits of the regulatory requirements. Whether a 6-pack or inspected CPFV, both are licensed by the CDFW to perform sportfishing activities. On average, the 6-pack vessels operate fewer hours per year than the inspected fleet, and these activity values have been proportionally considered in the emissions inventory. Vessels that operate under the low use thresholds (up to 700 hours for a Tier 3 or 4 engine) when within RCW, can comply with the CHC regulation without upgrading to the proposed performance standards. CARB staff provided data for the combined category of CPFVs – costs, emissions, and benefits.

Staff identified a total of 42 CPFVs were selected to represent the CPFV fleet of 352 from the AIS data. These data were used to assign the fraction of total emissions that occurred within 24 nm of the coast. The denominator, the total emissions, was derived from over 200 reported vessels that were reported to CARB to meet compliance requirements of the Current CHC Regulation. Using other methodologies, such as operator-reported fuel within the 0-3, 3-24, and beyond 24 nm zones, the total activity within 24 nm was within 3 percent of the methodology derived from AIS data. Therefore, because the two independent methodologies result in substantially similar results, CARB staff decided to continue using AIS data to apportion activity within RCW for the CPFV category, which matches the methodology used for the other 17 categories of vessels in the CHC inventory.

See Response to Comment 3261-2 in the Draft EA.

Comment 3294: "AWO urges the Air Resources Board not to proceed with the harbor craft rulemaking in its current form. At a time when California ports are experiencing historic congestion, CARB is proposing to take regulatory action that could decimate maritime commerce. And this is particularly egregious, because the proposed rule is based on inaccurate assumptions about the size of the harbor craft fleet and its impact on the environment.

To take just one example, CARB's modeled emissions from harbor craft are as much as four times higher than actual measured emissions from all sources captured at sampling stations in multiple major coastal areas. This data simply does not make sense. We've heard Board members discuss today the importance of data-driven regulation and we completely agree,

but CARB's failure to validate this -- to validate its model has done a great deal to undermine confidence in this regulatory process.

We urge the Board to halt this rulemaking and to replace it with a collaborative approach that will achieve more ambitious emission reduction goals on a workable timeline.”

Response 3294: CARB disagrees with the statement that “CARB’s modeled emissions from harbor craft are as much as four times higher than actual measured emissions from all sources captured at sampling stations in multiple major coastal areas.” Ramboll and AWO have attempted to compare measured ambient PM2.5 levels compared to modeled diesel PM concentrations at select locations within the South Coast Air Basin. However, they instead compared modeled cancer risk (in chances per million) to ambient PM2.5, which has resulted in the discrepancies highlighted above. The modeled PM2.5 concentrations should be calculated by dividing the modeled cancer risk values by 894 (the DPM unit cancer risk factor) and multiplying by 0.956 (DPM to PM2.5 ratio). CARB’s emissions inventory, air quality dispersion modeling and therefore modeled cancer risk is accurately described in Appendix G of the ISOR. The CHC health risk analysis modeling files, which include both PM2.5 concentrations and diesel PM cancer risk values, are available for download at the following website: <https://www.arb.ca.gov/CommercialHarborCraft-Health-Risk-Files>.⁶⁸

Also see Response 3118.15 regarding CARB’s commitments to reduce emissions.

Comment 3423: “Good morning. My name is Leah Harnish and I'm the Government Affairs Associate at the American Waterways Operators, or AWO, as you've heard, and I am our specialist in clean air and water policy. Thank you for the opportunity to testify.

AWO represents the largest portion of the tugboat, towboat, and barge industry in the country with over 300 members. Over the last three years, AWO and our members have met with CARB staff and Board to discuss the Commercial Harbor Craft Rule.

During these meetings, we've expressed our concerns about the rule and our desire to help CARB improve air quality, and reach our shared zero-emissions goal.

AWO has submitted comments to the document, but I'd like to highlight our concern about the data that was used to craft this policy. When AWO first started meeting with CARB -- CARB staff, we notified them that the data they were relying on was not an accurate representation of the number of vessels operating in California. Staff uses a U.S. Coast Guard database that reports vessel ownership and regulatory status. However, where a vessel is registered does not necessarily equate to where they operate.

AWO commissioned an independent vessel inventory using the automatic identification system, or AIS. AIS tracks the movement of vessels and this report found that over 200 towing vessels operated within 100 nautical miles of the California coast. Nearly -- or only 200, nearly 30 fewer than CARB had estimated.

⁶⁸ CARB, Commercial Harbor Craft – Health Risk Files <https://ww2.arb.ca.gov/resources/documents/commercial-harbor-craft-health-risk-files>.

Policies must be built on accurate information. And while staff has told us that they are regularly updating, their model, the proposed rule does not reflect this. We ask that this rule not be approved, but instead reviewed and updated with health benefits and cost effectiveness to better reflect the numbers and impact that vessels have that operate in California regulated waters. Thank you for your time”

Response 3423: CARB’s 2021 emissions inventory estimates rely on the best available data when considering the effects of the 2022 Amendments. For Towing vessels, initially, CARB staff used USCG data to scale up the vessel population to accommodate the non-reported vessel population. After communication with AWO, CARB changed this methodology and solely relied on CARB’s research with the respective vessel owner/operators, and the seaports. Using AWO data and CARB reporting data, staff derived the towing vessel population using the following calculation:

$$\frac{142 \text{ from AWO (Marine Exchange)} + (83 \text{ from CARB database} - 16 \text{ reported to CARB but now permanently out of California})}{(1 - 0.23)}$$

= 229 tugs statewide, where 0.23 is the non – reporting fraction of the 142 vessels provided by AWO.

Staff has had a meeting with AWO to clarify the towing vessel population.

Staff used the best available data to quantify the emission inventory and cost estimates for the 2022 Amendments (please refer to Response 3158.3 et al.).

Also see Response 3118.15 regarding CARB’s commitments to reduce emissions.

Comment 3424.1: “The amendment before you have been written without meaningful collaboration with the towing industry. As Leah had mentioned, the vessel counts are wrong and the total emissions are also wrong. When we tried to review the work and provide input to the staff, no substantive changes were made and the databases that we were given to evaluate were mislabeled.”

Response 3424.1: Staff worked with the AWO to clarify the towing vessel population. Please refer to Response 3423.

t. Renewable diesel and biodiesel

(1050) (1477) (1787.7)

Summary of Comment 1050 et al.: Commenters stated that diesel fuel is much cleaner than it used to be, and renewable diesel and other alternative fuels can make existing vessels cleaner at a reasonable cost.

Response 1050 et al.: Communities located near California’s seaport complexes bear a disproportionate health burden due to their proximity to the emissions generated from freight activity associated with the seaports, including truck, train, and vessel traffic in and around the seaports and harbors. To further protect communities most heavily impacted by California’s freight sector, additional emission reductions are necessary, including from harbor craft. The use of renewable diesel in harbor craft will result in additional emission reductions over conventional diesel. In May of 2019, CARB conducted emission testing on an excursion vessel using 100 percent conventional diesel, a 50/50 blend of renewable diesel

and conventional diesel, and 100 percent renewable diesel. The study demonstrated that NOx and PM emissions were reduced 11.8 percent and 26.6 percent, respectively, below conventional diesel when using R100. In addition, the use of renewable diesel has also been shown to reduce DPF maintenance costs by reducing the need to regenerate, repair, or replace DPFs as often. While the use of renewable diesel in harbor craft will reduce emissions, more reductions are necessary to better protect local communities and achieve the Federal air quality standards for ozone and particulate matter.

(3196) (3296) (3311) (3379.1) (3379.5) (3379.6) (3389) (3429) (3436) (3440) (3446) (3448)

Summary of Comment 3196 et al.: Commenters stated they would like to see the inclusion of other renewable fuels like biodiesel and renewable diesel blends in the 2022 Amendments. Commenters asserted that blending renewable diesel and biodiesel together maximizes the environmental and economic profiles of the both fuels. For example, a blend of renewable diesel at 80 percent and biodiesel at 20 percent can reduce NOx by 10 percent and PM by more than 40 percent when compared to petroleum diesel. Commenters also stated blends can help alleviate cost and supply concerns. Commenters provided the following rationale for allowing the use of R80/20 blends:

- Both R99 and R80/B20 reduce GHGs by up to 79% or more
- Both fuels reduce NOx: R99 reduces NOx by about 11%, R80/B20 by about 10%
- Both fuels reduce particulates: R99 reduces PM by about 27%, R80/B20 by 29%.

Commenters asked for a 15-day change to the amendments to include biodiesel and renewable diesel blends.

Commenters also expressed concerns over this statement from the ISOR: "Biodiesel, which is a methyl ester compound that should not be used in high quantities with retrofit aftertreatment." Commenters claim that there is no evidence to support this claim, and that biodiesel has been successfully used with SCR systems in on-road applications.

Response 3196 et al.: Requiring the use of renewable diesel (R100/R99) achieves reductions of PM, NOx, and has lifecycle GHG benefits. There is no other diesel fuel blend that provides greater NOx reductions, and as outlined in staff's March 24, 2022 Board presentation, there is a shortfall of NOx reductions needed to meet the goals of the SIP Strategy. Because many engines will meet the proposed performance standards without the use of emission control devices such as SCR it is critical that we maximize NOx reductions through fuel-based strategies by requiring use of R99 rather than R80/B20.

In addition to lower NOx reductions, use of blends of biodiesel of more than 5 percent would not meet the standards for California diesel per ASTM International (ASTM) D-975.

The 2022 Amendments require use of diesel emission control strategies verified pursuant to 13 CCR 2700-2711 et seq., which requires additional analysis and testing for use of alternative diesel fuels, such as biodiesel. Use of B20 would also require marine engine manufacturer approval because the fuel blend would not meet the ASTM D975 standard for diesel, a standard which is met by renewable and conventional CARB diesel.

There is also a lack of emissions and performance testing of biodiesel blends such as R80/B20 in CHC applications. Whereas there may be opportunities to use this fuel for other source categories, or CHC in the future, the industry has not supplied any supporting data that confirm expected emissions reductions and ongoing acceptable performance of engines, engine systems, and fueling infrastructure in CHC applications. Use of biodiesel could also conflict with requirements of vessels that travel internationally or into international waters, such as the MARPOL Annex VI Regulation 18 requirements that require testing to ensure no increases in NOx emissions.

Also see Response 1050 et al., Response 3235.1 through 3235.12, and Response to Comment 3196-1 in the Response to Comments on the Draft EA.

Comment 3235.1: “Unsupported Restriction of Biodiesel/Renewable Diesel Blends

- Amend 93118.5(e)7A to allow RD/BD blends with up to 20% BD to qualify under the rule

We have asked staff to amend this provision to include up to 80/20 RD/BD blends as allowed in ADF appendix 1 sub article 2(a)(1)B approved ADF formulations, and to reflect the additional data submitted by REG to the agency under the ADF and approved and issued in the form of executive orders (Executive Order G-714-ADF02, Executive Order G-714-ADF06, and Executive Order G-714-ADF09). In fact, we are somewhat confused as to why CARB’s own regulation and supporting data weren’t included by reference within this rulemaking. The REG data is further expanded upon in Appendix A.”

Response 3235.1: Please refer to Response to Comment 3235-1 in the Response to Comments on the Draft EA.

Additionally, the executive orders mentioned by the commenter references the Alternative Diesel Fuels (ADF) Regulation, which is intended to maintain NOx neutrality of fuels in California (meaning no change in overall NOx emissions). This regulation is designed to reduce NOx emissions from CHC. In addition, based on the 2015 ADF Regulation Staff Report,⁶⁹ staff expects that an RD80/BD20 blend would likely reduce the NOx benefits of R100 by about half. CARB staff has made no changes to the regulation based on commenter’s suggestion.

Comment 3235.2: “From our understanding, the R99 recommendation is to ensure that the renewable fuel used produces the most emission reductions possible. In practice, however, we believe this presents a number of challenges which we have highlighted below:

The CHC regulation is intended to reduce all transportation emissions (The CHC ISOR (page I-2) references HSC § 43108(a) directs CARB to achieve “the maximum degree of emission reduction possible.”), but the use of R99/R100 is focused entirely on NOx reduction and represents an incomplete picture of all engine emissions.”

⁶⁹ CARB, Initial Statement of Reasons for Proposed Rulemaking: Proposed Regulation on the Commercialization of Alternative Diesel Fuels, January 2, 2015, last accessed July 16, 2021, <https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf>.

Response 3235.2: Regarding the comment that CARB regulations must achieve the maximum degree of emissions reductions possible, staff responds that although this rulemaking aims to achieve maximum feasible reductions of all air pollutants, the emissions characteristics of CHC engines and the emission reduction capabilities of available control measures often require decisions to achieve greater reductions in some pollutants and lesser reductions in other pollutants. Moreover, the emissions reductions effects on diesel PM attributable to R100 and RD80/B20 blends have not been sufficiently evaluated to permit definitive conclusions regarding the potential differences in PM reductions between those fuel specifications.

Please also refer to Response 3235.4

Comment 3235.3: “Blends of biodiesel with renewable diesel has the ability to achieve a greater degree of emission reduction than neat renewable diesel. While blends of RD and BD could have slightly higher engine-out NOx emissions than neat RD (both blends and neat RD represent NOx reductions compared to CARB diesel), they produce lower emissions of particulate matter and hydrocarbons which can have greater adverse health effects than NOx, not to mention their potential to enable greater greenhouse gas (GHG) reductions than neat RD.”

Response 3235.3: Please refer to Response 3235.1 and Response to Comment 3235-2 in the Response to Comments on the Draft EA.

Comment 3235.4: This rule making is intended to focus on overall air quality in disadvantaged communities surrounding ports and harbors, not solely NOx. Staff have chosen, by disallowing RD/BD blends, to forgo additional reductions in other criteria pollutants and GHGs in favor of potential reductions in RD NOx emissions over the NOx reductions in 80/20 blends. Restricting the use of biodiesel may reduce marginal amounts of engine-out NOx but, most definitely will result in an increase in other engine emissions, including DPM from neat RD combustion. These engine emissions are environmental pollutants and present real health risks to local communities.”

Response 3235.4: Staff does not agree with commenter’s assertion that restricting use of biodiesel (BD) may reduce “marginal” amounts of engine-out NOx. Please refer to Response 3235.1 in this FSOR and Response to Comment 3532-1 in the Response to Comments on the Draft EA.

Staff does not agree with commenter’s assertion that restricting the use of BD most definitely will result in an increase in other engine emissions including DPM from neat renewable diesel (RD) combustion. When used in legacy engines both R100 and RD80/B20 significantly reduce PM emissions compared to conventional CARB ultra-low sulfur diesel (ULSD). The relative reductions in PM emissions between R100 and R80/B20 have not been studied sufficiently to make precise conclusions on the potential differences in degree of PM reductions between R100 and R80/B20. According to the 2015 ADF Regulation Staff Report, in engines equipped with DPFs, it was difficult to identify any meaningful differences in PM emissions between CARB diesel and BD.

Regarding relative GHG reductions, please refer to Response to Comment 3196-1 in the Response to Comments on the Draft EA.

Comment 3235.5: “Emissions from R100 in a legacy (pre tier 3 engine) engine may see a NOx decrease of roughly 4% over the NOx reductions (compared to CARB diesel) from R80/B20 blends, however, there would be an increase in DPM of up to 12% compared to R80/B20. This trade off does not meet the stated goals of the rulemaking.”

Response 3235.5: Please refer to Response 3235.1 and 3235.4 in this FSOR and Response to Comments 3196-1 and 3235-4 in the Response to Comments on the Draft EA.

Comment 3235.6: “While modern Tier 3 CHC engines currently include NOx mitigation aftertreatment they do not have DPM mitigation. This means if the data CARB used to make its ADF determinations on blends was in any way in error [it is not], any potential NOx increases from allowing up to 20% BD inclusion would still be mitigated with modern CHC engines while the more substantial DPM reduction benefits from BD blending would be prohibited allowing higher levels of DPM to still present in at-risk communities.”

Response 3235.6: Please refer to Response to Comment 3196-1, 3235-2, and 3235-5 in the Response to Comments on the Draft EA.

Comment 3235.7: “ASTM D975 alone is an insufficient standard for determining whether R99/R100 is truly suitable for this class of engines. The technical specifications are not comprehensive and can miss some crucial fuel performance characteristics, which is why some engine manufacturers, including Wabtec, and some fuel system component manufacturers, including Bosch, are currently limiting RD inclusion recommendations to 30 – 50%.”

Response 3235.7: R100 that meets ASTM D975 is considered equivalent to diesel derived from petroleum that meets ASTM D975, through a consensus process of standard development by the fuel and engine industry. Engine manufacturers recommend fuels meeting ASTM D975 standards. Staff has yet to receive data supporting a technical basis for limiting RD use in engines.

Please also refer to Response to Comment 3235-6 in the Response to Comments on the Draft EA.

Comment 3235.8: “The use of R99/R100 may cause performance issues in the CHC engines where it will be used. For example, RD is an extremely non-polar fuel with different solvency and elastomer interactions than traditional diesel which may cause additives to separate out (particularly when fuel is contacted with water) and has been proven to cause legacy elastomers to shrink (see Figure B1 and references in Appendix B), which has been observed to contribute to problems such as fuel injector seal leakage. RD also has an extremely high Cetane Number which can cause combustion and timing issues in both lower speed and legacy engines. These and other effects have been observed in engine testing for certain locomotive engines which are very similar to the larger CHC engines under consideration. Including BD in RD can mitigate all of the undesirable attributes of neat RD that have been identified so far. (See Table B1 in Appendix B)”

Response 3235.8: Please refer to Response to Comment 3235-6 in the Response to Comments on the Draft EA.

Discussion regarding locomotive engines is outside the scope of this rulemaking.

Comment 3235.9: “The CHC rule as proposed is disharmonious with the current fuel allowed under ASTM D975. ASTM D975 allows for the inclusion of up to 5% biodiesel in the finished diesel fuel.”

Response 3235.9: Please refer to Response to Comment 3235-7 in the Response to Comments on the Draft EA.

Comment 3235.10: “RD is currently in limited supply, in spite of the fact that nearly all RD consumed in the U.S. is used in California, and is projected to be fully subscribed for the foreseeable future.”

Response 3235.10: CARB staff has assessed the supply and demand for RD and determined that there is more than sufficient RD available in California to supply the regulated vessels, as presented in the ISOR, Chapter III. H. 2.

Comment 3235.11: “Lastly, the rulemaking contains changes to the Alternative Control of Emissions (ACE) section. Under the ACE, “an applicant would be able to comply by receiving approval from the Executive Officer (EO) to pursue an alternative that includes, but is not limited to, any combination of engine modifications, exhaust treatment control, engine repowers, use of alternative fuels [emphasis added] or additives, fleet averaging, or any other measures that, when implemented, will sufficiently reduce emissions equivalent to the emissions performance standards identified in the Proposed Amendments. Since blends of 80% renewable diesel and 20% biodiesel have already received full approval under the provisions of the Alternative Diesel Fuel regulation. We fully expect the EO’s orders to be extended to Harbor Craft. Admittedly, we wonder why staff would propose this step instead of simply referencing the emission data and work done under the ADF by allowing RD/BD blends of up to 80/20 to qualify under the rule. Accordingly we ask that this change be made in any 15 day change authorized by the Board”

Response 3235.11: Please refer to Response to Comment 3235-8 in the Response to Comments on the Draft EA.

Please also refer to Response 3235.1 in this document where it is noted that the ADF Regulation is designed to achieve NOx neutrality, as opposed to the CHC Regulation which is designed to reduce NOx emissions.

Comment 3235.12: “Unsupported Comments about Biodiesel”

Edit Appendix E to remove the biodiesel section...

Like biodiesel, renewable diesel is also an invaluable renewable fuel (albeit much less widely used than biodiesel and with substantially less “real world” experience), but it is not what Appendix E claims it is. It is without irony that we point out the concerns raised about biodiesel also apply to renewable diesel (see Table B1 provided in support of these comments)

It is particularly confusing given how much data CARB has already accumulated on biodiesel and renewable diesel as a result of the Alternative Diesel Fuel (ADF) regulation. One particularly problematic example, from the ISOR is as follows: "biodiesel, which is a methyl ester compound that should not be used in high quantities with retrofit aftertreatment." We have found no evidence to support the claim in Appendix E that biodiesel cannot be used in high quantities due to aftertreatment concerns.

CARB's own findings in the 2015 ISOR for the ADF determined "Engines that meet the latest emission standards through the use of Selective Catalytic Reduction (SCR) have been shown to have no significant difference in NOx emissions based on the fuel used." It should be pointed out the study included testing B100 against CARB ULSD on an NTDE.

In terms of real world experience, the city of Ames, Iowa ran its snowplows with EPA Tier IV engines on B100 this past winter and its Tier IV work trucks on blends above B50 for the past nine months. Furthermore, we have received feedback from fuel users that R99 can cause engine performance issues in older diesel equipment, but those same users have indicated that an RD/BD blend eliminated those issues due to the superiority of biodiesel's elastomer interactions compared to neat renewable diesel. gain, we ask that the section on biodiesel be deleted from Appendix E."

[Letter contains appendix with supporting information]

Response 3235.12: Please refer to Response to Comments 3235-1 through 3235-11 in the Response to Comments on the Draft EA.

The Ames, Iowa project using B100 in snowplows is not relevant to this rulemaking as it is in conjunction with an additional system from Optimus Technologies advanced fuel system with a heat exchanger – a different technology than that used in CHC.

Comment 3379.2: "The staff's first response to our recommendation to allow the use of R80/B20 was, "[t]he use of an 80 percent renewable diesel and 20 percent biodiesel (R80/B20) blend instead of the proposed blend of renewable diesel at 99 percent purity or higher (R99) would increase NOx emissions." [emphasis added.] This is patently untrue, as evidenced by the next sentence in the response, which notes that "there wouldn't be as much of a NOx benefit [with R80/B20] as with R99." Not having as much of a benefit is vastly different than having an actual disbenefit (i.e., NOx increase), which the response initially states erroneously. Moreover, the added benefit of R80/B20 relative to R99 is the increased reduction in PM emissions, which was not addressed at all by the staff response and, as noted previously, is a benefit that should be particularly important for addressing EJ concerns."

Response 3379.2: Please see Response 3196 et al. and Response 3235.1 through Response 3235.12. In regard to staff's response mentioned above, staff would like to clarify that the use of R80/B20 would not result in the same NOx reductions than if operators were required to use R99 fuel. Although R80/B20 fuel would reduce NOx emissions from the traditional diesel fuel used in CHC, it would not be at the level of NOx reductions achieved by R99.

Comment 3379.3: "To our knowledge, there is no empirical evidence that supports the performance claims noted in the staff report and staff response to comments in any of the

reports and technical analyses in the rulemaking record. Instead, the staff's response to our recommendation recycles outdated and debunked misconceptions about biodiesel that are decades old. To illustrate, the response supports the performance issues claim by simply stating that "biodiesel also acts as a surfactant and in initial use in engines that have not used biodiesel (BD) previously, a lot of detritus can be released which can foul filters and negatively affect engine performance." The response further states that "biodiesel in 20 percent concentrations or higher could result in engine performance issues due to the age of the existing CHC fleet and fueling systems, including fuel tanks, fuel links, and other ancillary components."

First, our recommendation was for R80/B20, not blends of biodiesel higher than 20 percent. Further, the use of biodiesel, along with renewable diesel and conventional petroleum diesel, requires the operator to follow the manufacturer's recommended practices, which generally call for regular maintenance and cleaning of fuel-related systems, including tanks. Moreover, the staff's response was based in large part on the 2006 National Renewable Energy Laboratory's (NREL) Biodiesel Handling and Use Guide (Third Edition), which was cited in the staff report as a key basis in support of these claims. This is notable since that version of the NREL Biodiesel Handling and Use Guide was 15 years old at the time the proposed rulemaking was released for comment, and it has been long superseded by at least two subsequent editions. The current Fifth Edition (2016) identifies no particular performance concerns unique to B20 storage in tanks, noting that for microbial contamination (a main driver for the concerns noted in the response), "[t]he best way to deal with this issue (**for both petroleum diesel and biodiesel**) is adequate fuel storage tank housekeeping and monitoring, especially minimizing water in contact with the fuel." [emphasis added.]

It is important to note that biodiesel has been in use in California and the U.S. for a number of decades now. Under the state's Low Carbon Fuel Standard, the use of biodiesel has grown 19-fold, from a mere 14 million gallons in 2011 to about 270 million gallons in 2020 (and over 2 billion gallons in the U.S.). It is highly unlikely this sort of growth in biodiesel volumes would have occurred if fleet operators were experiencing broadly the types of issues cited in the response to comments (as CARB's own data shows, the use of B20 has been steadily growing in the state, outpacing the use of lower biodiesel blends)."

Response 3379.3: Please see Responses 3235 and 3296.

The commenter asserts that CARB staff tied performance issues to blends of BD greater than 20 percent whereas the commenter was referring to B20/R80 blends. This assertion characterizes CARB's statement incorrectly. CARB staff noted that "biodiesel in 20 percent concentrations or higher could result in engine performance issues."

Additionally, the commenter's assertion that the 2016 National Renewable Energy Laboratory (NREL) Biodiesel Handling and Use Guide (5th Edition) does not recognize any performance concerns specific to B20 storage in tanks is incorrect. The commenter has omitted the pertinent text on this subject while citing only text that when taken out of context implies that petroleum diesel and BD have similar microbial degradation issues, to wit [emphasis added]:

“Finally, **biodiesel is generally more susceptible than petroleum diesel to microbial degradation.** In the case of spills in the environment, this is a positive attribute because it biodegrades more rapidly. However, **microbial contamination of fuel storage tanks can plug dispensers and vehicle fuel filters and cause vehicles to stall.** This is not unheard of for petroleum diesel, but **anecdotal evidence suggests it is a greater problem for biodiesel blends.** The best way to deal with this issue (for both petroleum diesel and biodiesel) is adequate fuel storage tank housekeeping and monitoring, especially minimizing water in contact with the fuel.” [emphasis added]

Also, regarding the susceptibility of R100 to microbial degradation, per the commenter’s source, BD is more susceptible than petroleum diesel to microbial contamination. Petroleum diesel and RD have very similar chemical characteristics and in fact conform to the same ASTM D975 standard for diesel fuel. Therefore, the susceptibility of R100 to microbial degradation is expected to be like that of petroleum diesel. This is a characteristic of R100 that has been borne out in use.

Comment 3379.4: “Staff’s response to comments supports the rejection of the R80/B20 recommendation, in part, by noting that “biodiesel does not necessarily have lower lifecycle GHG emissions than renewable diesel.” While this statement is true on its face, it leaves out some important context. All things being equal, biodiesel production generally requires less energy than production of renewable diesel from the same feedstock, reflecting the simpler production process for biodiesel and the higher energy requirements for hydrotreating feedstocks to produce renewable hydrocarbon diesel. This difference typically confers biodiesel with a similar but lower carbon intensity (CI) score because of that reduced energy use.

Moreover, the response leaves out the fact that low CI biodiesel pathways far outnumber low CI renewable diesel pathways. For example, according to CARB’s own LCFS data, 7 there are 59 certified fuel pathways for biodiesel and renewable diesel with carbon intensity scores of 25 or less (25 CI reflecting about a 75% reduction in GHGs relative to petroleum diesel). Of those 59, 54 are for biodiesel pathways (most made from used cooking oil), while 5 are for renewable diesel pathways. Notably, many of those 54 biodiesel pathways were certified by eight California-based producers, including New Leaf Biofuel in San Diego, Crimson Renewable Energy in Bakersfield, Biodico Westside in Five Points, and Imperial Western Products in Coachella. By excluding even the possibility of an R80/B20 blend being used in commercial harborcraft, the proposal would harm the ability of in-state biodiesel producers, along with the jobs and economic activity they support in California, to compete in this sector and benefit California residents with their lowest polluting diesel replacements.”

Response 3379.4: The carbon intensity of biodiesel or renewable diesel depends on a variety of factors. The LCFS program assesses the lifecycle of GHG emissions associated with a fuel to calculate a carbon intensity for it. This includes direct emissions associated with producing, transporting, and using the fuel, as well as substantial indirect effects on GHG emissions, such as changes in land use associated with the feedstock used to produce the biofuel. CARB’s certified fuel pathways for renewable diesel and biodiesel indicate an overlapping range of carbon intensity values for these fuels. Thus, general statements about

the relative lifecycle GHG emissions of all biodiesels and all renewable diesels may not be accurate.

Comment 3396: "Thank you for this opportunity.

My name is Davie Reynolds and I work at PTL Marine. PTL marine operates and services the major ports in California, including San Diego, LA/Long Beach, Port Hueneme, and the Bay Area markets. We are an industrial distribution and services provider with an emphasis on fuels, lubricants, chemicals and last mile logistics. We employ approximately 60 California residents and our organization has been operating in California since 1956.

The maritime industry understands and appreciates the long term viability of renewable diesel as a drop-in fuel to be used instead of convent -- conventional distillates. Current production capabilities require a great majority of the renewable diesel fuel utilized in the State of California to be imported primarily from the Gulf Coast or Asian markets.

Current production capacity of renewable diesel in the United States is around 600 million gallons per year with only five plants producing the product. On the positive side, production is expected to scale up as there are at least six new plants in progress that will add an additional two billion gallons per year of production capacity by 2024.

The downside is that even with this incremental production, this still only represents a very small portion of the overall United States refinery capacity.

There are two California refineries, one in Martinez, and the other in the Bay Area that are being converted to renewable diesel production. These conversions will not be completed until 2023 and 2024 best case scenario. Until these conversions are completed, product availability and reliability will remain at risk. When supply is tight, there's an additional cost passed on to consumers, all consumers, not just those maritime industry operators. We request that you extend the renewable diesel fuel requirement for California harbor crafts until January 1st 2024."

Response 3396: See Response to Comment 3196-1 in the Response to Comments on the Draft EA. CHC are forecasted to use approximately 55 million gallons of fuel in 2023. Discussions with renewable diesel producers as well as recent news of large oil companies transitioning their refineries to produce solely R100 has confirmed that there will be enough renewable diesel available to accommodate the increase in demand from the requirements of the 2022 Amendments.

u. Harbor/Marina Space

(1704.3) (2358.4) (3195.44)

Summary of Comment 1704.3 et al.: Commenters stated that compliant vessels would have to be metal and larger in size to accommodate Tier 4 engines and DPFs, and that larger vessels could require harbors and marinas to spend resources to reconfigure landings and result in less slips available to rent. Commenters noted that many facilities have restrictions or limitations on the size of vessels docked. Commenters claimed that CARB did not consult with harbor masters and marina operators as part of any stakeholder outreach. Commenters

also expressed concern over whether construction costs associated with modifying or building larger slips has been included in CARB's analysis of operational costs.

Response 1704.3 et al.: See Response to Comment 1704-5 in the Response to Comments in the Draft EA regarding vessel sizes.

CARB staff disagrees with the commenters' assertion that staff did not consult harbor masters and marina operators. In early 2019, CARB staff reached out directly via phone or email to over 200 marina operators and harbors throughout the State and invited them to participate in a work group meeting to discuss the proposed facility requirements and provide input. Nine marina operators attended the work group meeting which was held via conference call on March 9, 2019 (see Table F-1 in ISOR Appendix F).

v. Facility Infrastructure

Comment 2617.1: "The responsibilities of infrastructure deployment, recordkeeping and overall facility-based compliance must be clearly obligated to the party which has the legitimate control. Proposing that facility owners and operators be jointly responsible for the installation and maintenance of shore power infrastructure of up to 99 kW will certainly cause confusion, and potentially conflict, regarding who will be responsible for purchasing, constructing, and maintaining the infrastructure. It poses a real question of who will then own the expensive infrastructure, as real estate agreements and operators could change, and who would face potential enforcement action from CARB if noncompliant? Furthermore, how would CARB enforce such a vague term under joint liability? Further confounding the issue is the responsibility of shore power infrastructure deployment greater than 99 kW is directed as the responsibility of Vessel Owner/Operator. For an industry that will be negatively impacted by these Amendments and required to pay millions of hard-earned dollars for new or retrofitted vessels, having assurance of responsibility and ownership for the supporting infrastructure is critical."

Response 2617.1: CARB staff made no changes to the Regulation Order based on the received comment. The 2022 Amendments as written allow CARB to hold responsible parties to requirements following CARB's Enforcement Policy. This enables CARB to assess any potential violation on a case-by-case basis, and to determine which party is properly deemed to be responsible for noncompliance. CARB staff will make the determination on a case-by-case basis which party is responsible for any violation.

CARB disagrees that requiring facility owners and facility operators to be jointly responsible for purchasing, installing, and maintaining all infrastructure needed to support specified vessel operator shore power requirements will result in confusion or potential conflict regarding the compliance obligations of facility owners or facility operators. It is well recognized that the concept of joint responsibility obligates each designated party to fully

comply with designated requirements,⁷⁰ and consequently the term “joint responsibility” is neither vague nor presents an obstacle to enforcement of the shore power requirements by CARB.

The CHC 2022 Amendments do not establish requirements regarding ownership rights of the infrastructure, but do not preclude facility owners and facility operators from entering contracts to specify such ownership rights or from specifying which entity or entities will fulfill specified shore power requirements, and such contractual agreements would likely be highly relevant if CARB determines that a violation of the shore power requirements exists.

CARB’s rationale for specifying that vessel owners and operators are responsible for shore power infrastructure sufficient to provide auxiliary power needs greater than 99 kW is clearly set out in the Staff Report:

The threshold of 99 kW was selected because auxiliary generators are typically not rated above 99 kW, unless they are used for the designed purpose or function of a vessel, such as generators installed on a petrochemical tank barge used to run product pumps. To avoid requiring facilities to pay for costs associated with high power infrastructure, CARB is proposing that vessel owners and operators be responsible for installing and maintaining any shore power infrastructure above 99 kW.

ISOR at III-22 to 23

Comment 2617.2: “The Zero-Emission and Advanced Technologies (ZEAT) Infrastructure Requirements, Section i(2)B, further complicates matters as facility owners and facility operators are jointly responsible for cooperating with vessel owners/operators for permitting, construction, installation, and maintenance of the infrastructure. Again, cooperating is an incredibly vague term and raises ambiguity of which party will complete these activities and which would face potential enforcement action from CARB if noncompliant. The proposed language and Table III-9 of the ISOR do not align, further confusing these many vague responsibilities. The marine ports of California have established procedures and contractual obligations for tenant improvements, to which these responsibilities do not align.”

Response 2617.2: As discussed in Response 2617.1, which is hereby incorporated by reference into this response, it is well recognized that the concept of joint responsibility obligates each designated party to fully comply with designated requirements,⁷¹ and consequently the term “joint responsibility” is neither vague nor presents an obstacle to enforcement of the shore power requirements by CARB. CARB further disagrees that the term “cooperating” is vague; that term is commonly understood as “act[ing] or work[ing]

⁷⁰ See, e.g., Cal. Civ. Code section 1431, “[a]n obligation imposed upon several persons, or a right created in favor of several persons, is presumed to be joint and not several”; “Parties who are jointly liable are each responsible for their share of a total obligation”, *DKN Holdings LLC v. Faerber*, 61 Cal.4th 813, 820 (2015)

⁷¹ See, e.g., Cal. Civ. Code section 1431, “[a]n obligation imposed upon several persons, or a right created in favor of several persons, is presumed to be joint and not several”; “Parties who are jointly liable are each responsible for their share of a total obligation”, *DKN Holdings LLC v. Faerber*, 61 Cal.4th 813, 820 (2015)

with another or others, act[ing] together or in compliance”.⁷² Consequently, the CHC 2022 Amendments obligate both facility owners and facility operators to cooperate with vessel owners or operators in activities related to permitting, constructing, installing, and maintaining ZEAT infrastructure, and CARB.

As also discussed in the Response 2617.1, the 2022 Amendments do not preclude facility owners and facility operators from entering contracts to specifically set forth ownership rights to installed infrastructure or establish which entity or entities will fulfill specified ZEAT infrastructure requirements. CARB therefore disagrees with the commenter’s claim that the CHC 2022 Amendments establish responsibilities that are inconsistent with established procedures and contractual obligations between marine ports and tenants, because the flexibility to establish compliance responsibilities also allows the contracting entities to accommodate a variety of factors, including provisions regarding tenant improvements. Moreover, such contractual agreements would likely be highly relevant if CARB determines that a violation of the ZEAT infrastructure requirements exists, and accordingly subsequently identifies which entity or entities caused the violation.

CARB disagrees that Table III-9 of the ISOR does not accurately portray the compliance responsibilities for facility owners and operators as set forth in 17 CCR section 93118.5(i)(2)(B).

Comment 3118.10: “CARB’s proposal to require shore power for vessels at berth depends on the development of shoreside infrastructure beyond the control of vessel operators. Terminal and lay-berth facilities should equitably bear the burden of any proposals requiring specific shoreside infrastructure development. Many towing vessel companies use shore power at their home berths to limit emissions and generator use and decrease idling time for main engines, but vessel operators without long-term leases and control over infrastructure may find it impossible to comply with this proposal.

The proposal also impacts customer berths, where the terminals may have to provide increased infrastructure. AWO is concerned that facilities may decide not to offer short-term lay berths if they cannot comply with CARB’s proposed infrastructure requirements. Limited berth space could force towing vessels to idle in the harbor between jobs or burn more fuel to return to an electrified home dock. In this situation, the regulation would have the perverse effect of increasing, not decreasing, air pollution. This scenario also highlights the importance of incentivizing the entire port community to shift to low-emissions technology rather than requiring vessel operators to bear the brunt of the responsibility.”

Response 3118.10: CARB staff made no changes to the Regulation Order based on the received comment. Facility owners and facility operators would be jointly responsible for the installation and maintenance of shore power infrastructure of up to 99 kW to support the shore power requirements of visiting vessels, including towing vessels.

⁷² Merriam-Webster Dictionary, <https://www.merriam-webster.com/dictionary/cooperate> (last visited January 26, 2022).

The 2022 Amendments include a number of flexible pathways to incentivize the voluntary adoption of zero-emission technology by harbor craft operators, such as the ZEAT credits and ACE plan. CARB staff committed at the March 24, 2022 Board Hearing to complete a biennial technology and implementation review to track the advancement of cleaner combustion and zero-emission technology in the marine sector, which could inform future regulatory action to require more zero-emission standards as it becomes feasible in the marine sector. CARB staff also committed to explore opportunities for CHC zero-emission contingency measures to include in the SIP.

Comment 3121.31: "Concept XII: Facility Infrastructure

We have similar concerns about the requirements of this concept driving facilities away from providing moorage to Harbor Craft. We currently struggle to find suitable locations around the ports in California to moor our vessels. Most port operations are looking to maximize their waterfront space on cargo and other high revenue generating activities. While moorage for Harbor Craft is essential to the port economy, it is often lost on the individual facility operator. As mentioned in our comments under Concept XI, we worry this will drive more and more facility operators away from offering moorage."

Response 3121.31: CARB staff made no changes to the Regulation Order based on the received comment. See Response 3118.10.

Comment 3218.1: "However, the Ports continue to assert that the facility operator be solely responsible for initiating any infrastructure improvements since the Ports do not control their operations. The Ports already have leases with the facility operators that require them to apply for land improvements including infrastructure as previously discussed with CARB staff. For the Port of Long Beach (POLB), tenants are allowed to install infrastructure after they successfully complete the required Harbor Development Permit (HDP) process. The Port of Los Angeles (POLA) has a similar Application for Port Permit (APP). The Ports provide the permit, ensuring environmental regulations/requirements are followed, that all necessary Port departments are aware, and that inspections occur, as required. Thus, the responsibility of deploying infrastructure should fall on the facility operator, as the Ports will still be involved in the infrastructure process and provide the approval for such work through their respective permit processes.

Under section (i).1, the regulatory language continues to place the responsibility on both facility owners and operators to jointly install infrastructure < 99 kW. The Ports still believe that joint responsibility will cause confusion regarding who will be responsible for purchasing, constructing, and maintaining the infrastructure; who will own the infrastructure; and who would face potential enforcement action from CARB if noncompliant. The Ports do not control CHC operations, so would not know the necessary power requirements. As stated earlier, this section conflicts with the Ports' currently established procedures and contractual obligations for any tenant improvement. [...]

Section (j).2 needs further clarification as it only states "facilities" and does not differentiate if the reference is to the facility owner or facility operators that are required to report on land side infrastructure. The Ports encourage CARB staff to change this reporting requirement to

be only for the facility operators, and that any obligation regarding infrastructure should not be jointly or solely delegated to the facility owners, as it conflicts with our existing leases.”

Response 3218.1: CARB staff made no changes to the Regulation Order based on the received comment. The facility recordkeeping and reporting requirements specified in subsection (j) apply to both owners and operators of facilities with land-side infrastructure to support the use of shore power. See Response 2617.1.

Comment 3400.1: “One strategy in various recent regulations and amendment CARB is adopting are holding owners and operators jointly responsible are not being obligated to a specific party at all. CARB staff have said to let the industry work it out, but unfortunately, that's not how business works. We must rely on formal contracts and agreements.

Seaports have established procedures and contractual obligations. For the zero-emission infrastructure a vital component of this regulation, it will certainly cause confusion and likely conflict regarding who will be responsible for purchasing and maintaining infrastructure, and who even owns it in the end.”

Response 3400.1: CARB staff made no changes to the Regulation Order based on the received comment. See Response 2617.1.

w. Opacity Testing

Comment 3118.11: “The opacity testing proposal is too subjective. Certain types of towing vessels have a highly variable duty cycle and their engines must be tuned to provide the power, maneuverability, and braking necessary to operate safely. CARB’s proposal suggests testing should be done during the transitional phase of a vessel’s fuel map (i.e., when accelerating or decelerating the engine), and not at steady state (i.e., at constant RPM under a consistent load), where the engines operate most efficiently. Tuning the engine to minimize smoke during the transitional phase could compromise engine integrity when the operator needs maximum responsiveness to ensure safe operation.

The power and torque requirements during the transitional phase of accelerating a marine engine are different from those forces required for highway and off-road applications. For a tugboat, maneuvering a vessel while applying forces to a moving ship or barge is a dynamic process that places a high demand on the propeller, and it has been a challenge for engine manufacturers to ensure the vessel’s engines do not stall in the process. Stalling an engine in this environment can be deadly, causing the tug to capsize or be overrun by the ship it is assisting. One way to avoid this risk is to alter the fuel map to ensure there is adequate fuel available when the need arises. This may result in a temporary overfuel event that creates haze. This is not a sign that the vessel’s emission controls have failed, but rather the result of a prudent safety measure to avoid the much greater risk to human life and the environment if the tug were to capsize. Opacity testing should be done at a constant RPM, under a constant load, to ensure the engine is operating appropriately”

Response 3118.11: See Response 3158.13 et al.

Comment 3121.35: “Concept XVI: Opacity Testing

The proposed rule is unclear in the method of testing that will be used for Harbor Craft. As described earlier in our comments, Marine Harbor Craft have a highly variable duty cycle. Engines must be tuned such that they can successfully accelerate and decelerate to provide the vessel with the power, maneuverability and braking necessary to safely operate. The text of the Concept suggests that CARB would like to test during the transitional phase of our fuel map (accelerating or decelerating the engine) and not at steady state (i.e. at constant RPM under a consistent load) where the engines were designed to operate most efficiently. The result will be almost certainly some level of smokiness. Tuning the engine to get rid of this momentary smokiness will put the engine at risk of stalling or shutting down just when the operator needs an immediate response. To ensure the engines are tested in the manner that they are certified by the EPA we ask CARB to consider:

Any Opacity testing of marine equipment should be done at steady state, either prior to or post acceleration/deceleration.

Testing should not be annual and serves no purpose other than to increase the operating cost and down time on the vessel. Like automobile emission testing it should be based on known risk factors such as age of the equipment and history. Propose once in the first 5 years to set a baseline, then every 5 years after that.

Opacity testing should not be required for vessels qualifying under the low-use operating requirements.”

Response 3121.35: See Response 3158.13 et al. The Regulation Order clearly outlines the CHC opacity testing procedure and it is a transient testing protocol since it is adapted from the SAE J1667 testing protocol. CHC opacity testing is a biennial requirement every two years, not every year. The intent of requiring opacity testing is to identify the vessel engines with emissions control systems failures emitting pollution at levels higher than the applicable emission standards and control those excess emissions by requiring repairs, verifying by retesting, or taking the engine out of service until repairs can be completed.

CARB staff disagrees that vessels applying for a low-use exemption should not have to complete an opacity test as part of the application. CARB will not approve a low-use exemption for vessels that cannot pass the CHC opacity testing procedure that are operating in a gross polluter condition.

Auxiliary engines would not be subject to biennial testing requirements but would be subject to meeting the same opacity limits as main engines during inspections. CARB staff may test auxiliary engines upon receiving a complaint of excess visible emissions.

Comment 3158.13 & 3378.14: “We have concerns about the requirements and costs for opacity testing. Our tug boats are specially tuned for performance to provide the power, maneuverability, and braking necessary to operate safely while maneuvering heavy loads, towing equipment or operating in tight quarters. We agree with the American Waterways Operators conclusion that “Tuning the engine to minimize smoke during the transitional phase could compromise engine integrity when the operator needs maximum responsiveness to ensure safe operation.”

Response 3158.13 et al.: CARB does not anticipate any engine tuning changes in response to the opacity testing requirements in the 2022 Amendments. This test procedure is adapted from the SAE J1667 opacity testing procedure, a transient smoke testing protocol, and is a field test to evaluate the repair or maintenance status of the engine to its factory certified condition only. Transient testing is required to effectively test the proper function of engine emissions control systems such as boost pressure sensors, turbocharger operation, sequential turbocharger valves and wastegate actuator operation (if equipped), exhaust gas recirculation actuator function (if equipped), and general state of engine maintenance. CARB staff does not agree that testing opacity during steady state engine operation when such engine emissions control subsystem components are operating in a near equilibrium state with steady intake air boost pressure from the turbochargers is an effective method to determine if emissions control subsystem components are functioning properly both individually or in combination. CARB staff believes transient opacity testing is the most effective way to determine if engine emissions control components are functioning properly.

See Response to Comment 3158-2 in the Response to Comments on the Draft EA.

Comment 3195.59: "On behalf of CPFV's throughout the state of California, SAC and GGFA recommend the following modifications to the current CHC amendment: [...]"

That Opacity testing requirements be eliminated. These requirements are cumbersome, and a majority of our operators will not have the capacity or resources to complete this task."

Response 3195.59: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3121.35. Certified third-party opacity testers are available to provide opacity testing service when needed, and a list of certified third-party opacity testers will be posted on CARB's CHC website for stakeholder's convenience. Additionally, CARB will be partnered with the CCDET to provide opacity test trainings in several universities in different locations.

x. Other Suggestions

(2617.6) (2617.7) (3400.3) (3445.2)

Summary of Comment 2617.6 et al.: Commenters mentioned that the CAA requires that California obtain a waiver from U.S. EPA prior to enforcing any off-road emissions standard. Commenters urged CARB to declare their intention to obtain a U.S. EPA waiver prior to adoption and implementation of the Amendments. Commenters asserted that given the demonstrated lead time and cost effectiveness concerns at issue, a preemption waiver should not be viewed as a foregone conclusion in this case."

Response 2617.6 et al.: CARB staff made no changes to the Regulation Order based on the received comment. To the extent that this rulemaking action requires an authorization pursuant to section 209(e) of the federal CAA, CARB will submit a request that U.S. EPA either grant an authorization or confirm that the Proposed Amendments fall within the scope of a previously granted authorization. Once U.S. EPA grants California that authorization request, CARB will be able to enforce those elements of the Amendments that require authorization pursuant to section 209(e) of the CAA.

Comment 671: "A multi-tiered approach, utilizing engine replacement with existing technology that will be better than the current Tier 2 engines utilized in these vessels coupled with modifications to operations to include some of what is already in CHC2021:

- 1) Utilization of shore power immediately upon return to berth UNLESS the vessel will be underway within a pre-determined timeframe.
- 2) Main engine idling reduction - When not required, main engines must be secured within a certain timeframe, i.e. 2 mins, 3 mins, 5 mins, etc.
- 3) Engine maintenance - Engines must be maintained per OEM recommended intervals for oil/filter changes, air filter changes, engine adjustments, etc. Documentation of said maintenance to be electronically provided to CARB at time of maintenance. Yes, this is a huge work load, but will keep owners honest.
- 4) SMOG Program - Development of a SMOG program that tests engines on each vessel every 1 to 2 years to ensure they fall within CARB guidelines. Similar to tests performed on motor vehicles. Currently a program of this nature for CHC does not exist. Once again, huge workload, but will keep owners honest.

New Technology Exploration:

Work with small business CHC and marine PE's to develop usable technology for these vessels to reduce GHG emissions while satisfying safety requirements set forth by USCG and accompanying CFR's. The following are examples, though presently are not feasible or practical now in a commercial small passenger vessel, but with development for the maritime industry this is/will be the future:

- 1) Installation of batteries, solar panels to allow for reduced electrical load and GHG emissions.
- 2) Survey of vessels to determine ways to reduce power consumption while maintaining safety and comfort for passengers/crew.
- 3) Nitrogen fuel cell technology
- 4) Open door discussions to slowly swing the paradigm. Most small business owners have a very small margin."

Response 671: CARB staff made no changes to the Regulation Order based on the received comments. The 2022 Amendments provide an ACE provision to allow vessel owners or operators to propose alternative emission control strategies in lieu of complying with otherwise applicable performance standards for new or in-use engines or harbor craft if applicants can demonstrate equivalent or greater emission reductions can be achieved. See Response 3117.3 for an example on using an ACE plan to provide more flexibility with the shore power and idling requirements.

See the reporting requirements in section (m) of the Regulation Order for maintenance reporting requirements, and section (k) for opacity testing requirements. If opacity testing does not meet the applicable opacity limits, vessel owners or operators are required to take the vessel out of service and repair the engine, conduct the opacity testing until the engines

meet the applicable opacity limits. Vessel owners or operators must submit engine repair information to CARB.

Comment 1207: "This effort needs to target the engine manufacturers, not the boat owners. That is the process that was followed in the auto industry."

Response 1207: CARB staff made no changes to the Regulation Order based on the received comments. Both the current and Amended Regulation Orders regulate new and in-use engines on new and in-use CHC because information indicates CHC operating in RCW emit significant quantities of emissions. See ISOR Sections V and VI.

However, CARB is actively working on outreach with engine OEMs to develop more U.S. EPA Tier 4 Marine certified engines in additional power subcategories and with exhaust aftertreatment OEMs seeking to obtain CARB Marine Verifications for Level III DPFs and/or Mark V SCR systems.

Comment 1297: "I am contacting to oppose the proposed pollution controls to be placed on sport fishing boats. If you believe that it is such a problem, then it should be imposed on all boats, large and small, commercial and pleasure craft."

Response 1297: See Response 1.7 et al., Response 3338, Response 3339, and Response 4 et al.

Comment 1702.2: "The visitor-serving boats used in Marina del Rey should not be lumped in with ferries, tug boats, dredges and the like. The Board should recognize the operational differences of various types of vessels."

Response 1702.2: See Response 1.7 et al., Response 3338, Response 3339, and Response 4 et al.

Comment 1707.6: "I urge the Board to consider the following recommendations:

- 1) Immediately push back the looming January 1, 2023 deadline for installation of Tier 4 engines by five years, to January 1, 2028. This change need to be made right away, since boat operators are already starting to sell their boats out-of-state.
- 2) Change the extension formula from two (2) years to four (4) years for each extension period, with wording that allows for multiple extensions and additional review of the regulations based on availability of truly functional technology.
- 3) Closely monitor technical developments in the marine engine industry to guide the production of feasible marine engine technology.
- 4) Work with the Coast Guard to craft regulations that are consistent with their practical expertise in watercraft construction and safety.
- 5) Allow significantly more time to ensure a robust and interactive process with all the stakeholders in California's maritime industry -- recreational boaters, commercial vessel operators, shipyards, maintenance facilities and coastal communities to make positive progress on this critical issue."

Response 1707.6: See Response 1.7 et al. for information on changes to the extension process for CPFVs. See Response 1094.2 et al. for information on CARB's biennial technology review and technical working group. See Response 696.8 regarding outreach. See Response 2602.2 regarding USCG compliance. See Response 3118.15 regarding CARB's commitments to reduce emissions.

Comment 1740.3: "For the vessels with new regulatory replacement schedules where engine replacement is feasible, we have the following regulatory recommendations:

1. Add compliance flexibility to the CHC Regulation for coastal areas that are in federal attainment for ambient air quality standards, similar to the flexibilities provided in the CARB "In-use On-road and Off-road" Regulations.
2. Any new replacement compliance dates should be set at least eight years from the effective date of the regulation, and not sooner than December 31, 2030, so air districts can provide meaningful grant funding for vessels with new regulatory schedules;
3. The replacement schedules should factor in time needed for engine manufacturers to complete the development and deployment of additional Tier 4 engines and DPFs, and the certification of these new technologies by CARB, the U.S. Coast Guard, and if necessary, Cal OSHA; and
4. The replacement schedules should allow flexibility for possible delays in Tier 4 and DPF deployment due to delays in production, certification, or industry limitations in repower specialists.

Most air districts in the state, including SLO County APCD, are poised to receive record grant awards from state funding next year and enhanced funding for future years as well. Our recommended modifications to the regulation would allow more small business boat operators to qualify for grant funding to assist with the needed repowers and retrofits over the next several years."

Response 1740.3: See Response 3158.10 et al. regarding areas that are in federal attainment for ambient air quality standards.

The 2022 Amendments do not contain requirements to replace vessels. See Chapter II of the ISOR regarding the need to reduce emissions from CHC starting in 2023.

See Response 3158.1 et al. regarding flexible compliance pathways and extensions available. Per subsection (e)(12), compliance extension E2 provides a renewable two-year extension if certified engines or DPFs are not available. See Master Response 1 in the Response to Comments on the Draft EA regarding the U.S. Coast Guard's inspection of new technologies.

Comment 2039: "There are several other ways for older boats to offset emissions.

The airline industry and many other forms of transportation as well as large corporation utilize carbon off sets as part of the neutral carbon footprint strategy. I encourage CARB resources board to offer or enable small businesses like sports fishing boat owner the same opportunities for offsets versus passing regulations that essentially will cost boat owners their business due to the extraordinary cost to retrofit with new engines."

Response 2039: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3158.1 et al., Response 3158.11 et al., and Response 3165.1. See Response to Comment 2039-1 in Response to Comments on the Draft EA.

Comment 2602.10: “EMA’s Potential Alternative Proposal

European Stage 5 marine engine requirements, which took effect in 2020, include DPF-forcing particle number (PN) standards. Those Stage 5 marine engines could be deployed in the U.S market to help achieve a portion of CARB’s CHC-related objectives. However, there are several issues that would need to be addressed, including how to coordinate U.S. EPA certification of EU Stage 5 engines.

Instead of adopting unique standards for California-deployed CHC marine engines that OEMs will not be able to build given the low sales volume of CHC marine engines in California, CARB should encourage the use of Tier 4 engines, and should work with EPA to streamline the certification of EU Stage 5 marine engine configurations for use in the U.S. by treating those engines, in effect, as non-credit-generating engines with Family Emissions Limits (FELs) below the Tier 4 standard. The streamlined EPA certification process would need to apply a PM certification metric (assessed in gravimetric terms of g/bhp-hr, and not in terms of PN) consistent with US regulations. The streamlined EPA certification also would need to cover deterioration factor (DF) issues as well. (Note: there is a 1.5 MW power limit for the EU Stage 5 standards.) Importantly, this recommended approach would utilize the certification procedures and requirements under the existing Tier 4 regulation, and so would obviate the need for unique CARB standards and retrofit requirements. CARB’s incentive programs could apply to engines with EU and US certifications below the Tier 4 FELs.

EPA certification requires some form of marine engine durability demonstration. Typically, a DF is used, which requires thousands of durability test hours in an engine laboratory.

Under various test engine exemptions, some marine engine manufacturers have accrued significant in-use durability hours from engines installed in vessels. Perhaps those sources of durability data (or assigned DFs) could be used in the US EPA streamlined certification of Stage 5 engines under the current Tier 4 certification protocols.”

Response 2602.10: CARB staff made no changes to the Regulation Order based on the received comments. See Response to Comment 2602-5 in the Response to Comments on the Draft EA.

Comment 2602.11: “US EPA and CARB also should consider promoting the availability of remanufacturing kits for marine engines as additional means to lower emissions from in-use vessels. Further, ARB could work with EPA to upgrade the existing US EPA marine engine remanufacturing requirements to include requirements to meet Tier 3 or Tier 4 emission levels. While that may not be a near-term priority for EPA, it is an issue that warrants additional consideration.”

Response 2602.11: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff is aware that some engine OEMs offer Tier upgrade rebuild kits for U.S. EPA certified in-use marine engines. If the upgrade kits are U.S. EPA certified

and the engines in the upgraded condition meet CARB's mandated In-Use Performance Standards, then such kits will be a CARB compliance pathway for operators to utilize.

See Response to Comment 2602-5 in the Response to Comments on the Draft EA.

Comment 2567.1: "While our Harbor Commission supports CARB's goals of improving statewide air quality, we question the need to expand state regulations well beyond existing U.S. EPA engine standards for all affected vessels, 1 including non-profits, local municipalities, family-owned businesses and other small enterprises, such as, sportfishing, charter boats, whale watching, sightseeing, educational, research, construction, training and similar activities.

As summarized below, our Harbor Commission has numerous concerns regarding inequitable regulation of different vessel categories, considerable expense of vessel upgrades, viability of current pollution controls and other concerns. Consequently, the Harbor Commission strongly urges CARB to conduct further detailed analysis of socioeconomic impacts on small enterprises, and work with industry associations and stakeholders to provide exemptions, deferrals, financial assistance and other regulatory relief until such time compliance can be feasibly achieved."

Response 2567.1: See Response 3339, Response 4 et al., Response 1.7 et al., and Response 3158.1 et al. Staff prepared the SRIA for the 2022 Amendments, pursuant to the requirements of SB 617 and the DOF. Please refer to SRIA for the cost and benefit impacts of the 2022 Amendments, including impacts to economic indicators like employment, gross State product, and output. Both the current and Amended Regulation Orders regulate new and in-use engines on new and in-use CHC because CHC operating in RCW emit significant quantities of emissions. See ISOR Sections V and VI.

Comment 2567.8: "As noted, our Harbor Commission shares the CARB's objective to improve statewide air quality, however, it is our view the proposed CHC regulations will adversely affect potentially thousands of family owned businesses, non-profits and other small enterprises across the state. As a consequence, we request that CARB conduct more detailed socioeconomic analysis on the impacts of the proposed amendments on affected small enterprises and coastal communities that rely on such commercial activities. Further, we strongly urge CARB to work with industry associations and other stakeholders to develop exemptions, remove regulatory inequities, offer financial assistance and provide other relief until such time compliance can be reasonably achieved for these vulnerable enterprises."

Response 2567.8: See Response 2567.1.

Comment 2595: "Instead, you can do smog checking for boat to make sure hydrocarbon is not emitted. Requires maintenance on diesels engine to reduce pollution."

Response 2595: CARB staff made no changes to the Regulation Order based on the received comments. Vessel "smog-checking" is an important aspect of controlling emissions from CHC as it will ensure CHC engines are not operating in a gross-polluter condition. However, smog-checking alone will not provide the necessary CHC emissions reductions outlined in the SIP to bring California into compliance with U.S. EPA's mandated National

Ambient Air Quality Standards. Therefore, the Amended Regulation order is mandating more stringent CHC emissions standards.

Hydrocarbons are one criteria pollutant of concern, however, the health risk to the public from CHC diesel PM and NOx emissions is a focus of this Regulation Order. Portable emissions measurement testing in the field for hydrocarbons is more costly, time consuming, and labor intensive than opacity testing. Therefore, in order to reduce costly downtime for operators CARB is implementing a biennial opacity testing requirement. Opacity testing is not a direct measurement of engine tailpipe emissions factors for PM or any other criteria pollutants and is intended to ensure engines are operating with properly functioning emissions controls and in their original U.S. EPA certified condition without illegal modifications.

The Regulation Order does contain provisions requiring CHC operators to inspect and repair engines with malfunctioning emissions controls at CARB E.O. request. See Subsection (k)(1)(F) in the Regulation Order for opacity testing requirements,

“(k)(1)(F) CARB may perform confirmatory opacity testing in the field, or audit opacity test records at any time. Additionally, upon having information that an engine may be operating with emission control malfunctions, the E.O. can request for an engine or emission control system inspection report from a certified dealer/distributor engine within 30 days. The owner/operator is responsible for performing any corrective action and reporting to CARB within 30 days of receiving an engine or emission control system inspection.”

Comment 2602.5: “Input from U.S. EPA staff has revealed other significant relevant issues that CARB staff have not fully accounted for. The bottom line conclusion from EPA’s input and comments is that CARB’s CHC regulations will need to specify that any DPF add-ons must be installed downstream of any SCR system (i.e., “after the box”). Otherwise, those add-ons could result in a number of issues that might cause violations of EPA’s regulations, including those pertaining to tampering, defeat devices, emissions warranties, delegated assembly, IRAFs, and durability issues.”

Response 2602.5: No change was made to the proposed regulation in response to this comment. The CHC 2022 Amendments specifically define required DPFs as a level 3 VDECS, which is in turn defined as an emission control strategy that primarily reduces diesel PM emissions, and has been verified pursuant to the California “Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines” (Verification Procedure).⁷³ The Verification Procedure involves a thorough evaluation of the emission reduction capability of an emission reduction device and of its durability, and accordingly ensures that the emission reductions achieved by the device are both real and durable, and that production units in the field are achieving emission reductions that are consistent with the verification. It also requires the manufacturer to warrant that the device is free from defects in design, materials, workmanship, and that operation of the device achieves the emission reduction levels it was

⁷³ CARB, Verification Procedure For In-Use Strategies to Control Emissions From Diesel Engines, last accessed July 16, 2021, <https://ww2.arb.ca.gov/our-work/programs/verification-procedure-use-strategies-control-emissions-diesel-engines>.

verified to achieve. Because devices verified pursuant to the Verification Procedure have demonstrated that they reduce emissions below the levels of emissions emitted from the base engine or vehicle, they create an exemption for device manufacturers and end-users from the prohibitions against tampering, modifying, or altering vehicles, engines, or emission control devices (Vehicle Code Sections 27156, 38391 et seq.)

The U.S. EPA provides similar exemptions from emissions system tampering if the person engaging in certain conduct has a reasonable basis to believe that his or her conduct will not adversely affect emissions, and believes that a reasonable basis includes issuance of an exemption from tampering prohibitions by CARB.

CARB's Verification Procedure requires applicants to conduct extensive emissions testing of devices, to demonstrate that their devices reduce baseline emissions by specified amounts, are durable, and accordingly the DPFs required by the 2022 Amendments provide both manufacturers and end users a reasonable basis to believe installation of approved DPFs will not adversely affect baseline emissions of engines installed in CHC. Moreover, manufacturers of approved DPFs must warrant their devices for periods ranging from 3 years, 1600 hours to 5 years, 4200 hours, depending on the power rating of the engines the DPFs are designed to be installed in.

Comment 2818.2: "Back a few years you went after the trucking industry. A company by the name of Airgas came up with an additive for the diesel petrol that they were using. I know for a fact that they still have several 100,000 or more trucks that are still driving around the country. Why can't you apply that type of technology instead of ending so many small businesses and family business in the boating and fishing industry???"

Response 2818.2: CARB staff made no changes to the Regulation Order based on the received comments. The 2022 Amendments requires a harbor craft to fuel a diesel engine with a cleaner fuel, either Renewable Diesel fuel (R100) or R99 fuel blend. Even though the fuel requirements achieve some emission reductions, vessel and engines requirements are needed to reduce more emissions. See Response 3158.1 et al.

Comment 3105.3: "Considering the aforementioned, the District suggests that CARB revise the proposed regulation to include the following:

Include language in subsection (e)(12)(E)5 to allow for a 2-year scheduling extension for public ferry agencies required to replace multiple vessels in the same or subsequent year(s).

Include language in section (f), Alternative Control of Emissions (ACE), clarifying that the Executive Officer (E.O.) has the authority under the proposed regulation to determine eligibility for a public agency's fleet compliance plan if the agency demonstrates a strategy that meets the intent of the regulation before the year 2033. The regulation should provide the E.O. with the flexibility to approve ACE plans that demonstrate a continual effort to achieve emissions reductions through construction projects that repower or replace existing vessels.

The first suggestion will allow for a staggered replacement of ferry vessels by public agencies with multiple vessels. Without such flexibility, the District's compliance with the proposed regulation will result in significant disruptions to ongoing public ferry services in the Bay

Area. The proposed 2-year extension will help the District maintain its current level of public ferry services while balancing construction projects with vessel down time caused by the maintenance required by regulation.

The second suggestion allows for public transit agencies like the District to submit a plan that meets the intent of the regulation. Federal Transit Agency (FTA) funds for replacing an existing vessel are available only after a vessel has reached the end of its useful life—ordinarily defined as after 25 years. The District suggests that CARB clarify the proposed regulation to ensure that, in approving an ACE plan, the E.O. may allow public ferry agencies like the District to achieve the emissions reductions called for in the proposed regulation without sacrificing funding sources critical to providing public transit.”

Response 3105.3: CARB staff made no changes to the Regulation Order based on the received comments. Regarding the commenter’s first suggestion, CARB staff decided not to allow a second one-year scheduling extension (E5) because the 2022 Amendments include other extensions which would give stakeholders additional time to plan ahead to meet their compliance obligation. Regarding the commenter’s second suggestion, the existing ACE plan provision (subsection (f)) already provides the requested flexibility because it allows engine powers, retrofits, or other strategies (such as ZEAT) that were in place as of January 1, 2023 to be included in the ACE plan for the time period of January 1, 2023 through December 31, 2024 if they were surplus to the requirements of subsection (e)(6). CARB has the authority to make a determination on approval or denial of the ACE plan based on whether the ACE could achieve equivalent or greater emissions than required. See Response 3158.1 et al., Response 2617.3, Response 3119.5, Response 3165.5, Response 2617.4, Response 3105.1, Response 3158.11 et al., and Response 3165.1.

Comment 3117.7: “C. Alternative Compliance Pathways: In General

Under the circumstances, the feasibility of the alternative compliance pathways under the proposed CHC regulation is crucial to the continuing operation of Crowley’s ATBs in California. In our view, identifying broad ranging, flexible and workable alternative compliance pathways is the only cost-effective option for ATB’s, and is consistent with Resolution 20-22’s direction to CARB to recognize the unique nature of ATBs.

Crowley appreciates the attention that CARB staff have applied to the option of alternative compliance pathways (“ACP”), as set forth in the proposed Section 93118.5(f).

We also acknowledge that because the Alternative Control of Emissions (“ACE”) plans are necessarily specific to the applicant’s fleet and operations, their consideration and approval by CARB’s Executive Officer (EO) will be based on a plan-by-plan basis, so that the Regulation is necessarily general when it comes to ACE plans.

However, Crowley believes that the ACP provisions of the proposed Regulation could benefit from more specificity and more clarity. This will enable owners and operators like Crowley better guidance on designing ACE plans.

Crowley has begun preliminary work on preparing its ACE plan in order to achieve equal or greater emission reductions than Crowley’s Normal Compliance Baseline. In this context, Crowley, with the support of Starcrest Consulting Group LLC, has modeled the emissions

associated with Crowley's fleet of ATBs. We would be pleased to share that data with CARB to illustrate the issues Crowley anticipates in designing an effective ACE plan.

One of the main questions raised by the Section 93118.5(f)(E) requirements for alternative emission control strategies (AECS) concerns fleet averaging. The definition of "fleet" in the proposed regulation is,

"the total number of harbor craft owned, rented, or leased by an owner or operator in an air district or distinct locale within RCW; or, the statewide population of a specific vessel type. On and after January 1, 2023, "fleet" also includes chartered harbor craft and extends to harbor craft in an air basin".

As that definition applies to Crowley and its diverse fleet of ocean-going vessels, including ATBs, and harbor tugboats, operating in California, this definition is unclear.

Crowley submits that it would be more consistent with the overall intent of the CHC regulation for the definition of "fleet", in the context of fleet averaging, to broadly include the statewide population of all vessels included within CARB's definition of "Harbor Craft". Moreover, given the diverse nature of Crowley's operations, we would propose that, for the purpose of "fleet averaging", all of Crowley's affiliates be included within the definition of owner or operator."

Response 3117.7: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3117.3.

The definition of "fleet" in the Regulation Order is the total number of harbor craft owned, rented, or leased by an owner or operator in an air district or distinct locale within RCW, including chartered harbor craft.

An applicant wishing to participate in an ACE may include one or more harbor craft in the ACE, but the applicant may only include harbor craft that the person owns or operates under the person's direct control.

Crowley may include any harbor craft under its direct control in an ACE.

Comment 3117.8: "D.

Alternative Compliance Pathways; AECS Options

Crowley submits that there should be no requirement that an approved AECS should involve a "combination" of two or more of the examples listed in Section 93118.5(f)(1)(E). The focus of the ACE plan should be on achieving a reduction in emissions that is equal to or greater than that achieved through an engine retrofit or replacement. To require that the AECS must combine one or more strategies is unnecessary and unduly restrictive.

Crowley also submits that Section 93118.5(f)(1)(E) would benefit from including more specific examples, so that owners and operators are better informed about how the EO will approach the approval process for an ACE plan and add to the equitable and consistent implementation of the rule.

Specifically, Crowley submits that the following could be included in Section 93118.5(f)(1)(E) as examples of alternative emission control strategies.

Funding of accelerated conversion of cargo handling equipment used at marine terminals and ports in communities affected by the fleet's operations. This will achieve the goal of the regulation to reduce emissions for those affected by the operations of the applicant's harbor craft, but would be more economically-efficient than other options.

Funding of the acceleration of the conversion of drayage trucks that operate out of California's ports from diesel to alternative energies, to achieve demonstrated emissions benefits.

Funding the expansion of shore-side port infrastructure for cold ironing and other EV uses; including the investing in roll-on-dock containerized clean power solutions that can accelerate the pace of shore-power deployment.

Coordinating with SDAPCD to reduce cancer risk for each permitted stationary source, including portable equipment and vessels, in or around port communities.

Working in partnership with infrastructure owners to accelerate the build out of ZEV HD/MD truck charging infrastructure, powered by all renewable sources and backed by a power purchase agreement.

Expanding investment in nature-based solutions to climate change and sea level rise impacts, including increase tree canopy coverage in port communities, the revitalization of emissions-sequestering wetlands, and other land use investments that serve as buffers both between industrial and residential uses, and against the impacts of climate change in accordance with the recommendations put forth in California's Fourth Climate Change Assessment (2018) in and around port communities.

Allocating resources and expertise towards a private 5G edge computing network to support marine innovation, fuel entrepreneurship, and technological activation to leverage efficiencies and reduce emissions.

Implementing an incentive program for zero and near-zero vehicles for low-income residents in disadvantaged areas in or around port communities.

Developing and implementing a residential air filtration and/or air monitoring program for residents in or around port communities.

Piloting a short-haul on-road electric truck pilot program that seeks to displace diesel vehicle miles traveled (VMT) annually. This strategy would yield emission reduction benefits and demonstrate continued leadership and collaboration on and around California's ports. The pilot would include an evaluation component to identify lessons learned and recommend action(s) to accelerate the transition to ZEV heavy-duty on-road electric trucks.

Investing in the development of new energy production capacity – such as renewable diesel, RNG, and biodiesel – to increase the availability of science-backed clean marine fuels for the California market.

Co-investing with the State of California on the development of zero emissions alternative assets to the ATBs in question, ensuring our continued ability to support the California market's energy needs while showcasing the possible innovation in public-private partnerships against the impacts of climate change.

These are just a few ideas to expand the scope of ACE plans to achieve equivalent or greater emissions reductions than would result from vessel engine retrofitting or replacement. Although the current definition, particularly Section 93118.5(f)(1)(E)8. ("any other measures that sufficiently reduce emissions") is broadly-written, Crowley submits that more examples, including some or all of the above, would help clarify what form of ACE plan would meet CARB's requirements and ensure all available emissions reductions strategies are considered."

Response 3117.8: CARB staff made no changes to the Regulation Order based on the received comments. The Regulation Order specifies that operators may use "any combination" of the listed examples of emission control strategies. This language allows for the use of one strategy as long as the emissions over the evaluation period are less than or equal to the emissions associated with direct Tier 4 + DPF compliance.

The examples of control strategies are general to allow for innovative strategies that decrease emissions. However, ACE plans may only apply to emissions from harbor craft subject to the 2022 Amendments and may not apply to other mobile or stationary source categories. Other source categories have their own regulations that may or may not include ACE provisions.

While CARB would encourage investments in zero-emission infrastructure, incentive programs for vehicles and trucks, etc., these investments cannot be used as an emissions reduction strategy for an ACE plan. The ACE plan must show equal or greater emissions reductions from a harbor craft fleet perspective.

Operators may deploy ZEAT vessels as part of an ACE or to receive ZEAT credits, but investments for zero-emissions vehicles and trucks does not reduce emissions from harbor craft.

Comment 3121.1: "We urge CARB to stop pushing this clearly flawed and unsupported by science regulation and work in collaboration with the CHC industry and other impacted stakeholders to craft a regulation that makes a difference. One that:

Develops rules that require those entering California must meet existing Best Available Technology Standard (BATS) at the time of entry or at the time construction began, whichever is first. (BATS defined as technology that is approved by both manufacturer and the regulator for use).

Sets up a technical advisory committee of both industry and regulatory members to determine what is the BATS.

Doesn't require adoption of unproven and unapproved technology (i.e. DPFs). Timelines should set adoption from the time of approval or production begins.

Doesn't require those who in good faith upgraded or built new to comply with existing regulations, i.e. 2007/2009 CHC law, to upgrade prior to the life cycle of that investment (15 years for a rebuilt engines, 25 years for reengine/new construction) is realized.

That exempt ATBs and Tugs in Ocean Transport from the CHC rules, simply because they are not harbor craft, and treating them as such is punitive and serves only to reduce the number of operators in the global supply chain.

Establishes funding initiatives to promote the early adoption of new technologies and infrastructure that reduces emissions.

Such a framework would accelerate the reduction of emissions from CHC, by promoting real, cost effective investment and the adoption of the best technology at the time. The currently proposed rule works against this by requiring constant incremental investment in technologies that are unproven and only offer marginal improvement at a very high cost. Capital that could be spent on the development of a zero-emission escort tug, will be spent, and arguably wasted, on industry trying to squeeze a non existentdiesel particulate filter (DPF) onto a vessel that it was not designed to receive it."

Response 3121.1: CARB staff made no changes to the Regulation Order based on the received comments. The commenter's proposal to use Best Available Technology Standard (BATS) is too broadly described to provide specific response, and CARB, for reasons set forth in the ISOR, believes the 2022 Amendments meet its statutory obligation to ensure the maximum feasible and cost-effective reduction of emissions from CHC.

See Response 3158.1 et al., Response 3158.11 et al., Response 2.1 et al., and Response 3117.3, Response 1094.1 et al., Response 2602.2, Response 3118.15, and Response to Comment 3121-3 in the Response to Comments on the Draft EA.

Comment 3121.25: "Concept IV: Mandates for Zero-Emission and Advanced Technologies

As with Concept III, a technology change of this type will take time to plan and incorporate in existing vessel designs. To facilitate this process, we would ask CARB to consider the following comments:

- b. Extend the phase in date to 5 years after the rule goes into effect. This will allow companies the time to properly transition their build programs to incorporate the new technology.
- c. Clarify the phase in date as the "Keel Laying Date", defined in 46 CFR 30.10-37.
- d. Clarify the expectation. Currently the documents reference a specific technology employed by one tug company. There are many competing technologies that achieve the same effect. What will be the test for a compliant system?
- e. Can you clarify under the Zero-Emission Capable Hybrid, would a company be allowed to average the percent of power from zero-emission sources over 24 hours? In other words is it CARBs intent that at all times and in all modes you must be drawing 30% of your power from non tailpipe emission sources, or just that 30% of the power you use over a period of time comes from non-tailpipe emission sources?"

Response 3121.25: CARB staff made a modification in Subsection 93118.5(e)(9)(A)5.; staff added a sentence “Notwithstanding the definition of ‘new harbor craft’ in subsection (d), a new harbor craft whose keel was laid before January 1, 2023 is subject to the requirements of (e)(12) and not of this subsection (e)(9).” This addition is necessary to clarify which subsection is applicable to a vessel that is under construction as of 1/1/2023.

See Response 3158.1 et al., Response 3158.11 et al., Response 3165.1, and Response 3118.15.

A Zero-Emission Capable Hybrid Vessel is defined as a CHC utilizing a hybrid power system with two or more onboard power sources, one or more of which is approved by CARB’s E.O. to be capable of providing a minimum of 30 percent of vessel power required for main propulsion and auxiliary power operation with zero tailpipe emissions when averaged over a calendar year.

The In-Use Performance Standards for diesel engines outlined in the Regulation Order are technology neutral as long as the applicable performance standards are met. The ZEAT requirements for short-run ferries and new-build excursion vessels outlined in the Regulation Order are also technology neutral. See the ZEAT requirements outlined in Subsections (e)(10) and (e)(11) of the Regulation Order.

Yes, 30 percent of the power used by the vessel over a period of time (one year) must come from non-tailpipe emitting sources. For example, a plug-in hybrid vessel with a battery ESS may demonstrate compliance with the 30 percent requirement by calculations showing combined kW-hours of grid power utilized to charge the battery ESS and power utilized for vessel shore power at dock compared to the vessel’s total annual main and auxiliary engine kW-hours of work calculated using the average main and auxiliary engine load factors outlined in Appendix H of the ISOR, the engine power ratings, and the annual hours of operating time reported to CARB for each engine.

Comment 3121.26: “Concept V: Removing Exemptions for Under 50 horsepower Vessel’s carry several “portable” engines for a variety of purposes. These include trash and salvage pump motors for dewatering compartments and outboard motors for skiffs.

Can you clarify if it is CARB’s intent to have these engines fall under the CHCR?”

Response 3121.26: CARB staff made no changes to the Regulation Order based on the received comments. All in-use engines onboard CHC are subject to the performance standards in subsection (e)(9) in the Regulation Order, regardless of hp ratings, unless the engine is exempt under subsection (c).

Comment 3121.29: “Concept VIII: Alternative Compliance Pathways We need a defined submittal plan, requirements and package to access and comment effectively on this concept. Under the existing regulations we petitioned CARB to recognize that the emission profile for the Hybrid Tug CAROLYN DOROTHY was already favorable to that of a vessel with the Tier Engines to which we were being required to upgrade. As explained to us, CARB was unable to look at emissions over time as the offset to point of time emissions.

Has CARB changed their position on this issue, and will they be willing to look at 24-hour profile versus a point of time approach?"

Response 3121.29: CARB staff made no changes to the Regulation Order based on the received comments. The 2022 Amendments incorporate the ACE option: "An applicant must establish that the ACE Plan achieves equivalent or greater emissions reductions than if the applicant were to directly comply with subsection (e)(10), (e)(12), and (e)(13), which is considered the Nominal Compliance Baseline." Please refer to Regulation Order for application process and criteria for the details of ACE plan.

Averaging tailpipe emissions of criteria pollutants over time rather than regulating tailpipe emissions at point of time is not a viable option for both reducing criteria pollutants and protecting public health. The 2022 Amendments protect all California communities impacted by CHC emissions by regulating the emissions factors of criteria pollutants from the tailpipe at point of time in order to ensure harbor craft emissions are not transferred from one region or community and concentrated into another by larger fleet operators.

If a zero-emission capable hybrid vessel is compliant with the applicable In-Use Performance Standards outlined in the Regulation Order and can demonstrate that 30 percent or more of combined main propulsion and auxiliary power will be derived from a zero-emission tailpipe emission source when averaged over a calendar year, then the vessel may be eligible to apply for a 3-year ZEAT Credit for another diesel vessel in their fleet. The ZEAT Application Process and other criteria are outlined in Subsection (e)(10 and (e)(11) of the Amended Regulation Order. Note that vessels already included in an ACE plan are not eligible to receive the ZEAT Credit.

Comment 3121.30: "Concept XI: Idling Limits and Shore Power Requirements

AmNav supports the idea of minimizing idle time as a way of reducing unnecessary emissions. Further we feel 15 minutes is adequate time to perform a proper start-up and shutdown, except where a watch change has occurred and the individual responsible for the machinery must ensure everything is running properly. We offer the following comments and questions.

Is our read that the initial daily startup allows for an additional 15 minutes, for 30 minutes total. If so, we would ask that the wording be changed to recognize that a watch change would constitute a new work period.

We are concerned by the unintended consequences this might have on finding adequate lay berths. Unlike ferries we do not transit between two docks that are dedicated to our service. Outside of our home dock, we have arrangements with several facility owners to utilize their docks in between ship jobs and barge moves. Most of these locations do not currently have infrastructure to provide shore power connections, so while we can shutdown our main engines, we must still run our generators. We believe most of these operators will deny us the ability to dock, rather than make the investment in shore power or deal with the increased regulatory burden. There is simply not enough money in it for them to make that type of investment. This will force us to idle in the harbor between jobs or return across the harbor to our home dock increasing our fuel burn and emission output. We suggest CARB

look at an incentive-based program for facilities to get credit for providing shore power infrastructure to the Harbor Craft vessels.”

Response 3121.30: CARB staff made no changes to the Regulation Order based on the received comments. Vessels may idle engines at dock for up to 30 consecutive minutes for the initial start-up of a vessel each day, or when a shift or crew change occurs on any vessel type. 17 CCR § 93118.5(h)(1)(E).

Facilities are required by the 2022 Amendments to provide shore power up to 99 kW if they receive more than 50 vessel visits per year. More information on this requirement is in section (i) of the Regulation Order. See Response 3118.10

Furthermore, vessels may idle at facilities where shore power is not available or not required pursuant to vessel visit thresholds as defined in subsection (i) of the Regulation Order.

Comment 3121.32: “Concept XIII: Reporting – Facilities As with Concept XI and XII the additional burden of reporting will likely have a negative impact on those facilities willing to rent or lease space to harbor craft. Our recommendation is that negative impact on our CHC’s ability to tie up and reduce emissions will offset any potential upside to CARB of finding potential non-reporters.”

Response 3121.32: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff does not anticipate reporting requirements to affect a facility’s willingness to lease space to harbor craft. See Response 3118.10.

Comment 3121.33: “Concept XIV: Reporting – Operators

In general, AmNav does not take issue with the increase in reporting requirements, so long as it does not come with an unnecessary administrative burden. To that end we request CARB consider the comments below:

In developing the form for input, care should be taken to ensure data can be uploaded in batch or bulk form from a database or spreadsheet. We would be opposed to an annual reporting requirement that involved filling in the individual fields for each vessel in our fleet, creating hours of unnecessary work.

We have concerns with the switch to engine model year, which does not reflect accurately how long the engine has been operated or how long the owner has had to recoup his investment. We would much prefer CARB use the initial in-service date as the baseline for determining any implementation dates for that engine.

We believe CARB misunderstands the term Home Port. Home Port or Hailing Port as defined in the CFRs is “the name of the port from which a vessel hails, required by law to be painted on the stern of all documented vessels in the United States; the port in which the managing owner of the vessel lives, or which is nearest to his place of residence; the home port of a vessel.” It is not intended to indicate where a vessel is being operated. CARB may want to ask that specific question.”

Response 3121.33: CARB staff made no changes to the Regulation Order based on the received comments.

Records may be provided as a hard copy, electronic, or any alternative reporting strategy approved by the E.O. CARB staff anticipates publishing standardized reporting forms in excel spreadsheet format for both vessels and facilities subject to reporting requirements outlined in the Amended Regulation Order. CARB staff is currently evaluating options for online reporting databases with automated upload capabilities. However, until these systems are in place, stakeholders will be required to fulfil all of the reporting requirements utilizing the existing framework with the revised CHC and new Facilities Reporting Forms.

Engine model year is easier to verify because engine manufacturers identify the model year of each engine in the engine plate; engine's initial in-service dates vary on a vessel-by-vessel basis and need additional documents for CARB staff to verify. In addition, using engine model year is more easily informs CARB and vessel owners and operators of applicable certification standards.

Subsection 93118.5(e)(12)(D) listed two methods to determine the engine model year which is used to determine the compliance dates for engines. An engine's model year can be the engine's actual model year, or the engine's effective model based on the "Engine's Tier 3 or Tier 4 Rebuild Model Year" method.

Homebase is defined as the facility located in RCW where a vessel is anchored, docked, or moored the majority of the time within a calendar year. Homeport is defined as the port in which a vessel is registered or permanently based.

Some of the provisions in the 2022 Amendments depend on where the vessel is docked the majority of the time, which uses the term "homebase." The definition for homebase is therefore not necessarily the same as the definition of home port in the CFRs.

Comment 3121.34: "Concept XV: Vessel Identifiers

We recognize that properly tracking vessels is a critical part of implementing any regulation. And while it is true . . . "There is currently no single identifier that can be used across all vessel types..." every vessel covered by the regulation will have either an Official Number, IMO Number or CF Number that will be unique. Our recommendation is that vessels be required to provide CARB one of these numbers for tracking and those vessels that are not already required to display their chosen identification number, could be required under the regulation to do so."

Response 3121.34: CARB staff made no changes to the Regulation Order based on the received comments. A CARB UVI is essential for proper reporting and compliance tracking. Vessels with no CARB UVI may not be reporting to CARB, regardless of possession of other identifying numbers such as an IMO or California-Assigned Vessel Number (CF).

Comment 3121.36: "Concept XVIII: Compliance Fee

Compliance with this new regulation will cost companies millions of dollars in upgrades. A fee on top will be an additional burden that will be shared by our shareholders, customers and the end consumer. We ask CARB to do everything possible to minimize the cost of administration, including reducing the frequency of reporting and opacity testing to minimum required to regulate the rule.

We would propose a fee based on the size of fleet and number of engines, with a cap. Suggest something about \$100 per year per engine, up to \$400 per vessel, with a cap of \$2,000 per company fleet.

We would be opposed to any fee that was based on hours or activity as neither impacts the work required by CARB to regulate nor should it be there be a penalty for being busy."

Response 3121.36: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3195.60. See Response 3158.30 et al. regarding opacity testing frequency.

The fee schedule is not based on hours of activity. The fee schedule is based on both the number of engines and number of vessels within a fleet, with a 25% lower fee for single-vessel fleets, and a 50% higher fee for low-use engines. The fee structure was built such that the total fees paid by harbor craft in the state equals the staffing cost for implementation and enforcement of the 2022 Amendments. Placing a cap on the fees per fleet would not adequately cover these staffing costs.

Comment 3134.2 & 3382.3: "2. Section (e)(12)(D)(1)(b), in addition to other locations within the Proposed Amendments, states that the compliance date for an engine is based on the model year of the in-use engine that was installed in the in-use vessel as of December 31, 2022.

WETA Comment: WETA is currently in the process of upgrading all four of our Gemini Class vessels with tier 4 engines. One of those vessels is projected to be in the shipyard on December 31, 2022, and will likely not have an engine in it. According to the September 21, 2021 version of the Proposed Amendments, WETA is unsure what engine model year to attribute to a vessel that will not have an engine installed on December 31, 2022.

Requested change: WETA respectfully requests CARB to address "in process" engine replacement projects in the sections of the Proposed Amendments that discuss the engine model year being set on December 31, 2022. WETA proposes that the following underlined text be included in Section (e)(12)(D)(1)(b) and other locations where it states that the compliance date for an engine is based on the model year of the in-use engine that was installed in the in-use vessel as of December 31, 2022:

Using Method D1, with the exception of engines complying by subsection (e)(12)(C)(4)b., the compliance date for an engine is based on the model year of the in-use engine that was installed in the in-use vessel as of December 31, 2022. For in-use vessels that are in the process of an engine replacement on December 31, 2022, the compliance date will be based on the model year of the engine that is in the process of being installed in a vessel."

Response 3134.2 et al.: CARB modified the Regulation in response to this comment. See amended 17 CCR 93118.5(e)(12)(D)1.b.

Comment 3147.1: "CARB seems to be rejecting input from stakeholders or even ports who have published studies on effective methods of emissions reduction (See: Case Study of the San Pedro Bay Ports' Clean Air Action Plan 2006-2018):

“In the early days of the CAAP’s deployment, the SPBP supported end-of-tailpipe technologies (e.g., diesel particulate filters) on existing, in-use diesel engines. These technologies provided immediate emission reductions at relatively low cost, but their benefits could be shortlived, especially if the retrofit equipment were not properly maintained. Over time, the Ports and partners moved toward engine and vehicle replacements with cleaner diesel technologies, which were more expensive investments but also more robust”

Given the time (and opportunity) to actually engage and collaborate with CARB, industry stakeholders and CARB could achieve more sustainable alternatives than what is being implemented in the regulations (including the use of DPF filters).

While work shops were held in December 2018 the input that was provide was clearly ignored. CARB chose to hold a workshop to discuss the Draft Proposed Amendments to the Commercial Harbor Craft Regulation on March 16, 2021. The actual Draft Proposed were not released until April 1, 2021. This was completely unacceptable as it provided no time for a thoughtful and thorough review of the proposal allowing for meaningful comments on these extensive regulations. Previously, CARB’s projected vessel count increases in the emission inventory did not match the projected increases laid out in the cost benefit analysis. CARB acknowledged the variance between the emission inventory and cost benefit counts, stating that the assumptions in each document now match (as of March 16, 2021). How the corrections were applied, and how this impacts the findings, has not been discussed, therefore no time was given to do a meaningful review to understand the change.

The first time industry was provided with the actual information CARB used to justify this rule was September 21, 2021. Sause Bros. strongly support reducing air emissions for DAC’s; however, regulations that come at a high cost warrant scientific data, robust exploration of all options (especially those which are sustainable, and attainable), as well as community and stakeholder involvement and feedback. Less than two months is not enough time to provide meaningful input to these new rules that would help improve them and ensure that they achieved their goal.”

Response 3147.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 696.8, Response 3195.8, Response 1132.1 et al., Response 3195.45, and Response 3158.28 et al. Also see Chapter X of the ISOR for the evaluation of regulatory alternatives.

The excerpt from the Case Study of the San Pedro Bay Ports’ Clean Air Action Plan 2006-2018, is referencing early DPF retrofits made to on-road truck and off-road cargo handling equipment engines that were evidently (according to the Case Study) not properly maintained. The Case Study states, “Over time, the Ports and partners moved toward engine and vehicle replacements with cleaner diesel technologies, which were more expensive investments but also more robust.” CARB staff believes subsequent OEM engine and exhaust retrofit aftertreatment designs with cleaner diesel technologies have proven to be both effective and reliable in the on and off-road operating sectors and are mature for transfer into the CHC operating environment. See Appendix E to the ISOR, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies, for more detail on marine emission control strategies.

Additionally, CARB staff has included a provision for biennial opacity testing in Subsection (k) of the Regulation Order intended to require proper maintenance of engine emission control systems including aftertreatment devices.

Subsection (k)(1)(F), "CARB may perform confirmatory opacity testing in the field, or audit opacity test records at any time. Additionally, upon having information that an engine may be operating with emission control malfunctions, the E.O. can request for an engine or emission control system inspection report from a certified dealer/distributor engine within 30 days. The owner/operator is responsible for performing any corrective action and reporting to CARB within 30 days of receiving an engine or emission control system inspection."

Additionally, Subsection (k)(3)(D) of the Regulation Order stipulates engines failing opacity testing requirements shall be repaired and retested within 30-days or will be taken out of service, (k)(3)(D) "If the opacity test results exceed the applicable opacity limits as set forth in subsection (k)(2), the engine or DPF shall be repaired within 30 calendar days from the date of the failed opacity test or the engine shall be taken out of service. The information shall be recorded as specified in subsection (m)(18). Before being put back into service the engine, DPF, or other emission control systems shall be repaired such that it meets the opacity requirements before being returned to service. A post-repair opacity test shall be performed to determine if the measured opacity is within the requirements in subsection (k)(2)."

These requirements are intended by CARB staff to prevent poorly maintained engines or aftertreatment devices from operating in a gross polluter condition.

Comment 3147.5: "CARB's Proposed Fee Concept-

We believe any new Harbor Craft rules and regulations need to clarify the difference between PERP and Harbor Craft engines. All of the engines on our barges are currently registered, paid for and inspected under the PERP program. However, they're also registered, tracked and inspected by Harbor Craft. Numerous Harbor Craft/CARB officials have admitted barge engines aren't portable and shouldn't be subject to PERP regulations. Unfortunately, SCAQMD enforcement officials believe these barge engines should be enrolled in PERP, and subject PERP fees and inspection regulations. Sause Bros. suggests Harbor Craft adopt the PERP fee model. The barge engines, currently enrolled, paid for and inspected should be able to roll over into a Harbor Craft fee structure at the engines next renewal date. Industries with models such as our, should not be subject to **both** Harbor Craft and PERP registration, fee and inspection programs. Further, it is a gross redundancy to re-register and immediately pay a Harbor Craft fee for barge engines currently enrolled and paid for under the PERP program. Harbor Craft could easily use a form similar to PERP's to register and pay for tug engines. Each tug engine would be issued a color coded placard with a Harbor Craft sticker that's valid for 3 years. The PERP model, fee structure and inspection program has proven workable over the years.

The per vessel and per main engine proposed fee structure is illogical. A lower fee for a single vessel fleet instead of a multiple vessel fleet just encourages separating out fleets into single vessel operations. Charging more for a low use exemption makes no sense as these engines by definition do not operate frequently in California."

Response 3147.5: CARB staff made no changes based on the received comments. As a threshold matter, the Regulation clearly states that if engines are permanently affixed to a CHC and such engines would otherwise be subject to the requirements of the regulation for portable compression ignition (CI) engines and equipment (sections 93116-93116.5, title 17 CCR), then such engines are subject to only the requirements of the CHC regulation. 17 CCR § 93118.5(b)(2)(A), 17 CCR § 93116.1(13).

The harbor craft fee structure is built such that engines subject to PERP fees are not subject to harbor craft fees. Harbor craft fees are collected per main propulsion engine and per vessel. A barge with only auxiliary engines would only be subject to the vessel fees.

Fees are assessed based on the number of main engines and number of vessels of the most up-to-date information reported to CARB as of March 31 of each calendar year.

Higher fees are assessed for low-use engines due to the additional staff time needed for processing low-use applications.

See Response 3121.36.

Comment 3158.31 & 3378.32: "The following statement was made on page D-2 of the Draft EA:

"Construction and modification of vessels would likely occur both inside and outside of California. As outlined in Section IV.E of Appendix E to the ISOR, CARB staff performed a survey of existing shipyards in California, Oregon, and Washington, which confirmed there is sufficient capacity to repower, retrofit, and build new vessels in response to the Proposed Amendments. The survey identified capacity for 23 percent of repowers and retrofits (82 out of 353 repowers per year), and capacity for 73 percent of new ship builds (72 out of 98 new builds per year) in either Oregon or Washington. Therefore, the majority of new vessel builds are expected to occur outside of California. This may be particularly likely because labor can be cheaper in other states."

Why are we not planning for these retrofits and new vessels to occur in California? We thought the idea was to create jobs and strengthen California's economy. Aside from jobs, the cost to mobilize a vessel to Oregon or Washington is prohibitive. For example, when estimating costs for a tug boat repower in the San Francisco Bay Area, the cost to transit our tug boat between San Diego and Alameda was between \$40,000 - \$50,000. Double that or 4x that for a trip to Oregon or Washington."

Response 3158.31 et al.: See Response to Comment 3158-11 in the Response to Comments on the Draft EA.

Comment 3170.7: "we ask that CARB:

Define its methodology for establishing the population of CHCs operating over 300 hours in California waters. It is important that the methodology also accounts for the specific operational usage of these vessels.

Show direct cause between CH C's and higher cancer rates. It is irresponsible to draw this conclusion without first proving causation for obvious reasons. Placing the burden of guilt

upon CHC operators, while openly acknowledging that "Industrial & On Road emission sources will cause NOx levels to increase through 2029", in a region that is heavily industrialized and situated amongst the nations most congested freeway systems seems to be a rush to judgement.

Enforce compliance dates on a case-by-case basis. CARB's approach to these CHC regulations applies a "one size fits all" solution for various types of vessels across vastly different industry sectors. While the current technology may be feasible for some CHC operators to implement within their fleets at this time, it does not mean that other operators in different industry sectors can automatically do the same. We ask that these compliance dates work in conjunction with a responsible rollout of this technology, where the OEM tests and approves these new engine upgrades for each specific vessel.

Re-evaluate its approach of regulation over incentivization. If the goal is to substantially lower emissions within heavily impacted, low-income regions then the current incentive structure must be re-evaluated. Currently, the only applicable public funding for vessel repowers come via the Carl Moyer, DERA, and WI/ Mitigation Trust programs. The ability of these programs to allocate funds for the purpose of a vessel repower is hindered by relatively low maximum award limits and grant stacking restrictions. These programs are inefficient in allocating sufficient funds for singular marine repower projects, much less multiple projects within the same fleet. As previously mentioned, many of these projects will not be simple repowers, but will involve a complete retrofit of the vessel. If this is the case for multiple ships within a single fleet, then the costs of integrating these new engines will be much higher. This means that the current maximum award limits of these funds will render them almost useless in helping CHC operators meet these new upgrade requirements. Restriction of these funds will be further exacerbated upon the implementation of harsher CHC regulations under AB-617."

Response 3170.7: See Response to Comment 3170-2 in the Response to Comments on the Draft EA. See Response 3118.15 regarding CARB's commitments to reducing emissions. See Response 2602.2 regarding feasibility and availability. See Response 1094.3 et al., regarding funding.

Comment 3195.62: "Beyond the general recommendations above, SAC/GGFA also recommend the following specific implementation measures:

CARB contract with the Cal Maritime Academy to establish an advisory committee to receive input on vessel design and operation for the various operational needs off the California Coast. CARB fund the Cal Maritime Academy to use the input of the Advisory Committee to design, build and deploy a minimum of four test vessels of different configurations to operate out of California ports for a minimum of seven years. The Cal Maritime Academy would contract with existing vessel owners to operate the test vessels, and CARB would cover all costs not covered by ticket prices, including any liability arising from the failure of the test vessel."

Response 3195.62: CARB staff made no changes based on the received comments. See Response 1094.3 et al. and Response 2923.2.

Comment 3261.14: “The California State Legislature has directed that implementation programs to reduce airborne toxins should be practicable (Health and Safety Code, subdivision (k) of section 39650). CARB’s work to improve air quality, protect public health, and address climate change is vitally important, and can continue without imposing impracticable burdens on the CPFV fleet. Electrification of all types of engines is rapidly evolving, and it is easy to imagine a future in the coming years where zero-emission vessels are the norm. As currently written, the draft rule changes appear to be less forward-thinking than possible, which will leave those vessel owners that can afford it, incurring greater costs than necessary by retrofitting in-use diesel engines or purchasing new vessels with Tier 3 or Tier 4 engines and then having to convert to zero-emission and advanced technologies just a few years later. Rather than prolonging the use of diesel engines, perhaps CARB could consider incentivizing a faster transition to zero emissions harbor craft, especially those vessels that spend the majority of their operating time closer to shore.”

Response 3261.14: Zero-emissions technology is currently best suited for limited marine applications, such as excursion and short-run ferry vessels. For other vessel categories, Tier 3 or 4 + DPF achieves the maximum feasible emissions reductions. Requiring all CHC vessel categories to use ZEAT would likely be cost prohibitive. Nevertheless, the 2022 Amendments incentivize the adoption of ZEAT through the ACE plan and ZEAT credits. See Response 1094.1 et al., for information regarding the biennial Technology and Implementation Review.

Comment 3376: “Overview:

The proposed CHC regulations are visionary as they are the first regulations by any US regulatory agency to require ZEAT (Zero-Emission Advanced Technology) in marine vessels. This is a pioneering step forward in addressing climate change in the marine sector.

It also is the first attempt by the California Air Resources Board (CARB) to bifurcate regulations based on distance traveled as it applies ZEAT requirements to ferries that operate less than three nautical miles and not those who travel more than three nautical miles. In defining this bifurcation, CARB has unintentionally created regulations that will cause longer-run diesel routes, more diesel fuel consumption and more climate change as well as unfair competition for those abiding by the rules. This is because operators have figured out a few simple and pollution increasing ways to game and thus avoid the short-run ZEAT requirements. In order for ZEAT regulation to be effective, these two unintended consequences need to be fixed so that the ZEAT regulations create a level playing field and reduced GHG (greenhouse gas) emissions. This can easily be done by changing the proposed CHC definition of a short-run ferry before the proposed CHC regulations are adopted.

Language:

The language from the proposed CHC regulations are the definition of Short-Run ferry and the regulations that pertain to short-run ferries – both of which are copied below from the latest proposed CHC draft regulations. The bolded and italicized language creates loopholes that essentially any vessel operator could use in the Bay Area to avoid operating a ZEAT vessel on short-run routes.

“Short-Run Ferry” means a vessel dedicated to provide regularly scheduled round-trip ferry service between two points that are less than 3 nautical miles apart. Vessels that make multiple stops in a single round-trip, where half or more of the single trip lengths are less than 3 nautical miles, and the longest single trip length is less than 6 nautical miles, are considered short-run ferries. Vessels that provide ferry round-trip service between two points that are less than 3 nautical miles apart, but account for less than 20 percent of the service trips from one fleet or operator between those two points during a given calendar year, are not considered short-run ferries.

Section 10: Requirements for Zero-Emission and Advanced Technologies (ZEAT) for New, Newly Acquired and In-Use Short-Run Ferries, and New and Newly Acquired Excursion Vessels (Applicable On and After January 1, 2023).

A. Any person who sells, purchases, offers for sale, leases, rents, imports, or otherwise acquires the following that operates or is intended to operate in Regulated California Waters must comply with the applicable ZEAT requirements shown in Table 14 for new excursion vessels, newly acquired excursion vessels, new short-run ferries, newly acquired short-run ferries, or in-use short-run ferries operated above the annual hour limits for low-use exceptions as set forth in subsection (e)(14).

[See Appendix D for Table 14 provided in Comment #3376]

Impact:

This short-run ferry definition would result in two negative consequences:

More diesel fuel is burned as a result of how these regulations are written rather than less. One operator has informed its board that to serve a short-run route covered by these regulations, it will burn 187,000 more gallons of diesel fuel a year by adding legged routes to avoid the short-run ferry definition. From that one operator alone, 2094 tons of CO₂ emissions per year will be increased in the Bay Area in anticipation of avoiding the short-run ferry definition not to mention the increase in NO_x and other pollutants.

For example, the distance between Tiburon and Angel Island State Park is 1.1 nautical miles thereby making it a route subject to the short-run ferry definition. However, if a vessel goes from San Francisco to Tiburon (7 miles) and then Tiburon to Angel Island State Park (1.1 miles), then from Angel Island State Park to Tiburon (1.1 miles, Tiburon to San Francisco (7 miles), a route that has been set up by a ferry operator specifically to avoid the short-run ferry definition as written in two ways:

One or more legs are greater than 6 nautical miles

Less than half the legs are less than 3 nautical miles – this one is met because one of the five scheduled services a day stops in Sausalito intentionally to avoid the short-run ferry definition in advance of the proposed regulations being adopted thereby making it 52.3% of the each weekday’s routes being greater than 3 nautical miles and 51.7% of routes for the entire week as on the weekend there are no stops in Sausalito and this makes this legging strategy mean this ferry service does not have “half or more of the single trip lengths are less than 3 nautical miles”: https://www.goldengate.org/assets/1/6/angel_island_ferry_schedule4.pdf

Diesel boats that do not have to pay for the cost of electric conversions will underprice and put out of business electric vessels. In our opinion, if all vessels are required to be electric and one outcompetes the other, that is business and fair's fair. But what is not appropriate is in gaming and thus avoiding the ZEAT regulations, one operator is able to remain diesel and underprice an operator that converts to electric who builds the conversion cost not covered by Moyer and other funding into ticket prices.

The net impact of these two concerns is that as written, the proposed CHC regulations have the potential to significantly increase pollution in the Bay Area rather than reduce it, incent vessel operators to game the regulations rather than follow them, and put operators that do follow the proposed CHC regulations and invest in ZEAT technology at risk of being outcompeted by those gaming the regulations.

Key: Struck through language below should be removed from the short-run ferry definition and bolded language should be added

Solution:

"Short-Run Ferry" means a vessel dedicated to provide regularly scheduled round-trip ferry service between two points that are less than 3 nautical miles apart. Vessels that make multiple stops in a single round-trip, where 33% *half* or more of the single trip lengths are less than 3 nautical miles, and the average single trip length is less than 5.6 nautical miles, must submit an application to the local AQMD that is approved in order to not be considered short-run ferries. Vessels that provide ferry round-trip service between two points that are less than 3 nautical miles apart, but account for less than 20 percent of the service trips from one fleet or operator between those two points during a given calendar year, must submit an application to the local AQMD that is approved in order to not be considered short-run ferries.

Rationale:

With the wording additions and subtractions above, three things are achieved.

An operator would have to leg an unfeasible number of longer trips to game the regulations

An operator could not add one long leg to game the regulations due to changing it from single trip to average. To make this change from single to average neutral in difficulty of implementation, there is a suggested reduction in distance from 6 to 5 nautical mile

Rather than any exemption to the short-run ferry definition being automatic or up to the interpretation of the vessel operator, the local AQMD has to approve the exemption. Without this change, it is not specified as to how an exemption is determined. Giving the local AQMD the ability to grant an exemption if there is a logical reason for it or to prevent an exemption from being granted if the AQMD believes the effort is designed to circumvent the regulations and/or alternatives exist that make the requested exemption unnecessary helps ensure the regulations are properly interpreted. Our hope is that the AQMD would receive with each application an evaluation of the amount of diesel fuel burned to run the proposed routes as an exemption to the short-run ferry ZEAT requirements and that the AQMD would evaluate service need vs emissions using this information. Also, if an applicant

has to get the exemption from the AQMD, it gives the AQMD the opportunity to talk with the applicant about funding for a ZEAT conversion and reduced emissions instead of seeking an exemption to run longer routes.”

Response 3376: CARB amended the Regulation to address this comment. In Subsection 93118.5(d) in the definition of “Short-Run Ferry,” staff added a phrase clarifying that the distance threshold of 3 nautical miles between two points is straight line distance. This addition is necessary to avoid confusion on how to measure the distance between two points, and to ensure that route distance, which can be changed by a vessel operator, cannot be used to determine the distance between two points to circumvent the three nautical mile threshold. Staff also added the phrase “to load or unload passengers” for vessels making multiple stops in a single round-trip. This addition is necessary to clarify that only stops for loading or unloading passengers are considered ferry stops, other stops such as stops for exchanging crews are not considered ferry stops for the purposes of this definition.

Comment 3381.1: “The Bay Area Council, representing over 300 employers around the region, has long advocated for the robust expansion of ferry service and decarbonizing vessels on San Francisco Bay. We are very supportive of the goal of these Proposed Amendments, but remain concerned about the feasibility of meeting these targets. As such, we urge you to approve the alternative compliance plans and technologies that our Bay Area operators have diligently developed in collaboration with CARB staff to meet these greenhouse gas reduction targets in a financially and logistically feasible manner.”

Response 3381.1: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff will consider each ACE application on a case-by-case basis.

Comment 3381.2: “In partnership with CARB, WETA staff has worked throughout the last year to develop an Alternative Control of Emissions (ACE) plan that will shift 50% of their vessel fleet to zero emissions by 2035. We urge you to approve this ACE plan expeditiously following the approval of these Proposed Amendments so WETA can pursue funding opportunities to help decarbonize its fleet. Without this ACE plan, the cost of retrofitting or replacing its vessels to meet these new requirements would cost hundreds of millions of dollars that the transit agency simply does not have, particularly as it struggles to recover from the devastating financial impact of the pandemic.”

Response 3381.2: CARB staff made no changes to the Regulation Order based on the received comments. CARB staff will consider each ACE application on a case-by-case basis.

Comment 3385: “On behalf of the American Waterways Operators, attached is a resolution that AWO proposes the Board consider and adopt in to direct staff to improve the CHC rule as the commence final rulemaking. [...]”

Whereas, the Board finds that:

1. Upon implementation, the Regulation approved herein would reduce emissions of Diesel PM, GHG and Nox,

2. Supply chain delays, staffing shortages, and technical limitations decrease operators' ability to repower vessels in a typical timeframe,
3. The compliance deadlines in the Proposed Amendments should be modified to allow adequate time for engineering assessments, materials acquisition, shipyard reservation, and repowering,
4. Diesel Particulate Filters (DPF) installation shall not be required until a Board technical review finds a DPF that has been certified for marine use by the U.S. Coast Guard and American Bureau of Shipping, and is determined to be safe for installation by the engine manufacturer for the specific make and model of the engine,
5. A minimum of six (6) years from the point of DPF approval is needed in order to do the necessary reporting steps and to align the repowering work with other required regulatory activities, and
6. Upon passage of the Proposed Amendments, Board directs staff to work with industry to implement this and all previous Board resolutions and directives relating to the CHC Rule.

[...]

Whereas, the Board finds that:

1. Upon implementation, the Regulation approved herein would reduce emissions of Diesel PM, GHG and Nox,
2. Oceangoing tugs and barges and ATBs operate under the same conditions as vessels regulated under the California "Control Measure for Ocean-Going Vessels at Berth Regulation" (At-Berth Rule) and work under the conditions as the fishing vessels currently exempt from the Proposed Regulation,
3. These oceangoing vessels and all ATB with a capacity over 120,000 billion barrels of liquid should be exempt from the CHC rule and regulated under the At-Berth Rule,
4. Upon passage of the Proposed Amendments, Board directs staff to work with industry to implement this and Board resolutions 20-22.

[...]

Whereas, the Board finds that:

1. Upon implementation, the Regulation approved herein would reduce emissions of Diesel PM, GHG and Nox,
2. The cost to repower a vessel can be up to \$4.7 million and the cost to replace a vessel can be over \$16 million. Early retirement or repowering of these vessels prevent cost recouperation and can financially harm operators,
3. A vessel with a Tier 3 or Tier 4 engine, in full compliance with all parts of the Proposed Amendments except the DPF requirement, should have the opportunity to apply for an exemption whereas they may operate their existing engine for its full useful life with the requirement that at its close, the vessel will be retrofitted as a zero-emissions vessel or as

close to zero-emissions as technology allows or be removed from California Regulated waters,

4. Existing financial assistance mechanisms should be modified to better support the maritime industry in reaching California's zero-emissions goal, and

5. Upon passage of the Proposed Amendments, Board directs staff to work with industry to implement this and all previous Board resolutions and directives relating to the CHC Rule."

Response 3385: The Board did not make changes to Resolution 22-6 prior to approving it on March 24, 2022; therefore, CARB staff made no changes to the Regulation Order based on the received comments. As an initial matter, the commenter's proposed Resolution recites proposed findings that do not appear to be supported by specific documents or reports. For instance, proposed finding 2, "Supply chain delays, staffing shortages, and technical limitations decrease operators' ability to repower vessels in a typical timeframe," does not identify the information substantiating projections that specific supply chain or staffing shortages will occur in the relevant timeframes of interest. It is also unclear what proposed regulation order is being referenced in the proposed resolution. Given this uncertainty and vagueness, CARB rejects the invitation. Additional responses to proposed findings are set forth below: [list responses one-by-one]

See Response 3118.15, Response 3261.14, Response 1063, Response 2602.2, Response 3417, Response 3105.1, Response 3158.1 et al., Response 3117.3, Response 1094.2 et al., Response 3119.5, Response 2617.4, and Response 1094.3 et al. Also see Master Response 1 in the Response to Comments on the Draft EA.

Furthermore, compliance extension E2 provides a renewable 2-year extension if there are no certified engines or DPFs available to meet performance standards by compliance dates.

Comment 3392.1: "Because I know your time is valuable, I'm going to start with an ask and provide you the support for them afterwards. We ask that you allow low emission, Tier 3 and Tier 4 engines, to operate without modification for their useful life of 25 years from the Engine Model Year (EMY). When adjusting for the useful life of the vessels, this is consistent with the CARB regulations governing Class 8 trucks. In exchange vessel owners would agree to remove the vessels from service at the 25-year point and either a) replace it with a new zero emission tug, b) convert the existing tug to zero-emission technology, or c) contribute \$1 million dollars per engine to fund other Zero-Emission tug projects. This would all but guarantee the steady transformation of the harbor towing fleets in California from diesel to zero emission technology starting in the early 2030's and completing by the mid 2040's. Short of this, we'd at least ask for the same pathway considerations for towing vessels as Resolution 22-6 provides Commercial Passenger Fishing Vessels."

Response 3392.1: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3105.1, Response 3158.1 et al., Response 1094.2 et al., Response 3119.5, Response 2617.4, Response 3118.15, and Response 1094.3 et al.

Comment 3406.2: "Secondly, we requested CARB to address the situation of an in-process vessel repower project that will occur -- well, that will have an engine out of a vessel on December 31st, 2022, which is the date that is used to document the engine model year of

the vessel and therefore sets the compliance year for that vessel. We will have a vessel in the shipyard at that time and requesting the language to be included to address that situation.”

Response 3406.2: See Response 3134.2 et al.

Comment 3414: “Thank you. My name is Scott Merritt. I've spent my entire 39-year professional career serving the tug and barge industry. I've served as COO of Foss Maritime, Chairman of the Board of AWO, Vice Chair of the Harbor Safety Committee of San Francisco Bay. I've spent the last three years supporting the towing industry and attempting to understand the proposed rules and to provide meaningful input to CARB staff in support of a responsible regulation.

Unfortunately, the rule as written will be difficult, if not impossible, to comply with, challenging to administer and enforce, and disruptive to the supply chain, lead to the loss of living wage jobs, and most importantly be counterproductive to the goal of achieving zero emission.

Because I understand my time is limited, I'm going to start with an ask, one we've made to staff and Board members, and follow with supporting notes as time allows. They are all included in my written comments.

We ask that you allow low-emission, Tier 3 and 4, engines to operate without modification for their useful life of up to 25 years from the engine model year. When adjusting for life expectancy of tugs versus trucks, this is consistent with CARB regulations governing Class 8 trucks.

We propose an exchange when time is up that vessel owners will retire those vessels and replace them with zero-emission vessels or provide a penalty that would fund zero-emission tug projects to ensure we made that transition. This would all guarantee a steady transformation from diesel to zero emissions starting in the early 2030s and completing by the mid-2040s. Short of this, we'd ask for the same consideration given the commercial passenger fishing vessels by including us in the Resolution 22-6 pathway.

We -- the justifications I'm going to run out of time to go into, but I'd ask you to read our comments and read the comments of AWO. And I thank you for your time.”

Response 3414: CARB staff made no changes to the Regulation Order based on the received comments. See Response 3105.1, Response 3158.1 et al., Response 1094.2 et al., Response 3119.5, Response 2617.4, Response 3118.15, and Response 1094.3 et al.

y. Irrelevant Comments

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(3247) (3257) (3259) (3369) (3374) (3375) (3382.1) (3391)

Summary of Comment 9 et al.: Many comments received were duplicates, off-topic, or provided no commentary on the rule that warranted a response. Many comments generally request the board not adopt the 2022 Amendments but provide no substantive changes or information for staff to consider.

Response 9 et al.: CARB staff made no changes based on the received comments. The comment is outside the scope of this rulemaking, irrelevant, or not specifically directed at CARB's proposed action or to the procedures followed by CARB in proposing or adopting the action, therefore, CARB is not required to respond.

B. Comments Received during 15-day comment period

a. Comments in Opposition of the 15-Day Changes

Comment 3454.1: "The 15-day changes are based upon the directive of Resolution 22-6. Resolution 22-6 directs the CARB Executive Officer (E.O.) to "[w]ork with stakeholders to identify and to provide information needed to assist regulated entities in complying with" the CHC Regulation. Contrary to the restrictive interpretation adopted by CARB staff in the preamble to the Proposed Amendments, that directive is not limited only to potential

incentive program opportunities and technical documentation. In solely addressing the concerns of only one set of stakeholders, the current 15-day changes do not go far enough in meeting the more general directive of Resolution 22-6. The current 15-day changes process offers CARB an opportunity, as directed by Resolution 22-6, to work with Crowley to address meaningful alternative compliance pathways for ATBs. Given the dire consequences, outlined below, of failing to recognize the unique nature of Crowley's ATBs as oceangoing tank vessels, CARB should act upon this opportunity now. As discussed herein, Crowley's ATBs cannot, as a practical and economic matter, effectively comply with the CHC Regulation. CARB has arbitrarily and mistakenly classified Crowley's ATBs as commercial harbor craft, instead of properly recognizing that these larger ATBs are oceangoing tank vessels, functionally equivalent to oceangoing tankers that are regulated under the At-Berth Rule. Resolution 22-6, interpreted fairly, requires CARB Staff to work with Crowley to find a solution to this issue. Crowley submits that it is incumbent upon CARB Staff to recognize and cure this arbitrary mistaken categorization."

Response 3454.1: CARB staff made no changes to the Regulation Order based on the received comment. The comment is beyond the scope of the proposed 15-day Notice Amendments. CARB staff remains available to help Crowley and other operators explore alternative compliance pathways, such as the ACE plan or other options described in Response 3158.1 et al. Also see Response 3117.1, Response 3117.3, and Response 3117.6 regarding the classification of ATBs.

Comment 3454.2: "Crowley submits that CARB Staff should now take this opportunity to adhere to the broader directive of Resolution 22-6. In addition to the particular compliance issues confronted by Commercial Passenger Fishing Vessels, CARB Staff should address the acute obstacle to compliance with the CHC Regulation faced by larger ATBs, as oceangoing vessels."

Response 3454.2: CARB staff made no changes to the Regulation Order based on the received comment. The comment is beyond the scope of the proposed 15-day Notice Amendments. See Response 3454.1, Response 3117.1, Response 3117.3, and Response 3117.6 regarding the classification of ATBs.

b. Mid-term Review

(3455.1) (3455.2) (3455.3) (3455.4) (3455.5) (3455.6) (3455.7)

Summary of Comment 3455.1 et al.: Commenters representing CPFV shared several recommendations for the Midterm Review. Comments requested that CARB develop methods to validate or modify the assumptions made in the development of the rule for CHC operational parameters, emissions, benefits, and risks. The recommendations include but are not limited to:

- Update and revise financial analysis to address issues described in November 15, 2021 letter from SAC
- Separate cost numbers, emission numbers, risk reduction numbers, health benefits numbers, air modeling, and risk calculations for inspected six-pack vessels

- Address safety concerns, and complete new modeling, risk assessment, and health benefit analyses on the 15-day changes
- Review of opacity testing methodology
- Consult with regional water boards, marina operators, and fuel providers to determine how to appropriately provide renewable diesel to CHC
- Confirming availability and certification of Tier 4 engines in appropriate weight, size, and HP range for CPFVs
- Confirming DPF compatibility with Tier 3 and 4 engines, and address safety concerns with equipment
- Confirming availability of filter cleaning at harbors
- Updating costs associated with retrofits and replacements
- Evaluating the availability and reliability of zero-emission or hybrid technology and infrastructure for CPFVs
- Evaluating impacts to local economy, government, ocean-access, non-profits, and academia

Response 3455.1 et al.: CARB staff made no changes to the Regulation Order based on the received comments. The Midterm Review will focus on requirements affecting the commercial passenger fishing vessel fleet and will be considered by the Board to direct staff to develop potential regulatory amendments. CARB staff appreciates the interest in the Midterm Review and look forward to collaborating with industry experts on the Midterm Review to be completed by 2028. The remainder of the comments are beyond the scope of the proposed 15-day Notice Amendments.

c. Technology and Implementation Review

Comment 3459.1: “A We urge the CARB Board and staff to work with industry throughout the implementation period and confer with us during the two-year technical and implementation reviews in order to ensure as smooth a transition as possible. We ask that they specifically consult industry on:

- Schedules for engine phase-outs and the use of extensions to meet new requirements;
- Technical feasibility and requirements to approve new technologies for maritime use;
- Compliance costs and appropriate financial assistance programs;
- Strategies to mitigate financial and operational impacts; and
- Best practices for harnessing industry dynamics to create a holistic, zero emissions approach to harbor craft regulations that focuses on long term goals.”

Response 3459.1: CARB staff made no changes to the Regulation Order based on the received comment. The biennial Technology and Implementation Review will establish a technical working group to assess the commercial availability of lower-emitting combustion engines and zero-emission technology for all categories of harbor craft. Using input from this technical working group and other data provided by industry, CARB staff will report back to the Board by December 31, 2024, and thereafter, no less frequently than biennially through December 31, 2032, on the status of cleaner combustion and zero-emission technology

available for harbor craft. The remainder of the comments are beyond the scope of the proposed 15-day Notice Amendments.

Comment 3459.2: “Board Member Davina Hurt stated at the March 24, 2022 hearing that it is imperative not only to track and continuously update our data and approved technologies, but also to audit implementation of the CHC rule. AWO agrees and strongly recommends creating an oversight body that would review annually the progress of CHC implementation, including: compliance schedules, obstacles to retrofits, timelines for approving extensions, and other metrics. This would also serve as a forum for regulated entities to provide feedback and lived experience to guide further implementation. This body should consist of representatives from the CARB Board, CARB staff, the USCG, each regulated vessel class, engine manufacturers and community members.”

Response 3459.2: CARB staff made no changes to the Regulation Order based on the received comment. See Response 3459.1.

Comment 3460.1: “For this rule to be effective, the Bay Area AQMD asks CARB staff to consider reporting back to its Board on the progress of regulation implementation and on state incentive funding awarded to new marine projects post-adoption beginning January of 2023.”

Response 3460.1: CARB staff made no changes to the Regulation Order based on the received comment. See Response 3459.1.

d. Pilot Vessels

Summary of Comment 3458: Jacobsen Pilot Service submitted a comment requesting that pilot boats be re-classified as emergency use vessels, as they are often acting as first responders on the water.

Response 3458: CARB staff recognizes the life-saving capabilities of pilot boats and other harbor craft, however the definition of “dedicated emergency use vessel” specifies that performing fire suppression, police response, or emergency rescue must be a vessel’s only specified vocation reported to CARB to be considered a dedicated emergency use vessel. CARB staff did make a clarification in the 15-day package to the definition of dedicated emergency use vessel to clarify that vessels performing channel deepening, levee repair, or clearing debris are not classified as dedicated emergency use vessels.

CARB staff believes the definition of dedicated emergency use vessel in the 15-day package adequately describes vessels that do not engage in commercial activity as their primary vocation, and instead, perform fire suppression, police response, and emergency rescue as its primary vocation. CARB staff does not recommend allowing CHC that perform these duties as a secondary vocation to fall under the definition of dedicated emergency use vessel.

Comment 3460.2: “Finally, in addition to the extension pathways considered for Commercial Passenger Fishing Vessels, we request that CARB also consider granting a one-time up to three-year extension to operators in bar-pilot service with vessels having tier zero engines to

allow them the time needed to upgrade directly to zero emissions engines and qualify for grant funding.”

Response 3460.2: CARB staff made no changes to the Regulation Order based on the received comment. The one-time ten-year extension for CPFVs was considered because the near-term reductions achieved by requiring vessels to upgrade to Tier 3 by the end of 2024 balances the additional emissions the State will see due to delaying Tier 4 + DPF compliance until 2034. This extension option for CPFVs is *emissions neutral* because in our health benefit analyses, CPFVs were assumed to utilize 6 to 8 years of feasibility extensions, at their current engine tiers. Early upgrades to Tier 3 will achieve near-term emission reductions that we wouldn’t otherwise achieve without the ten-year extension option. This option is emissions neutral for CPFVs only, making this not a valid compliance option for other vessel categories. A one-time three-year extension for pilot vessels will delay the emissions reductions and public health benefits of the rule. See Response 3118.15 regarding CARB’s commitments to reduce emissions from CHC.

e. Irrelevant Comments

(3451) (3452) (3453) (3456) (3457)

Response 3151 et al.: CARB staff made no changes to the Regulation Order based on the received comments. The comment is outside the scope of this rulemaking, irrelevant, or not specifically directed at CARB’s proposed 15-day changes, therefore, CARB is not required to respond.

V. Peer Review

Health and Safety Code section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. Here, CARB determined that the rulemaking did not contain a scientific basis or scientific portion subject to peer review, and thus no peer review as set forth in section 57004 needed to be performed.

Specifically, this rulemaking action primarily requires CHC vessels to meet a performance standard, either equivalent to a Tier 3 engine + DPF, Tier 4 engine + DPF, zero-emission, zero-emission capable hybrid, or Tier 2 engine depending on the vessel category and engine power rating. The regulation also contains requirements for annual vessel and facility reporting, engine exhaust opacity testing, use of renewable diesel fuel, use of shore power while docked, vessel labeling, and payment of compliance fees. The factors CARB considered in proposing and adopting such standards and requirements entirely relate to engineering issues. For instance, which technologies can be developed and implemented on affected CHC engines within the proposed time frames, how effective those technologies are in reducing emissions of affected engines in relation to existing emission control systems and components, and estimating the relative sizes, weights, costs, and maintenance requirements associated with each anticipated compliance technology. Those factors did not involve the application of scientific findings or the development of scientific theories.