



Overview of the Commercial Harbor Craft Regulation

Technical Working Group Workshop #1
April 24, 2024

Purpose of the Technical Working Group

***Purpose:** To assess the commercial availability of lower-emitting combustion engines and zero-emission technology for all types of commercial harbor craft.*

- Board Resolution 22-6 requires CARB staff to form the TWG and report to the Board by December 31, 2024 and biennially
- Goal to provide and exchange information capturing the range of perspectives present in the TWG, including community and industry
- TWG will provide insights regarding commercial availability, feasibility, effectiveness, potential barriers, and processes for adoption of technology



What Are Commercial Harbor Craft?

- Varied and unique operations, categories defined in Regulation
- Any commercial vessel that is not ocean-going or recreational
- Typically diesel-fueled
- Operate statewide, activity highest near seaports, marinas, and harbors; impacts felt over 50 miles inland

CHC Vessel Types

- Barges: Articulated Tug Barges (ATBs), double-hull petrochemical tank barges, double-hull fuel-bunker barges, and others
 - Commercial fishing vessels
 - Commercial passenger fishing vessels (Sportfishing)
 - Crew and supply vessels
 - Dredges: mechanical and hydraulic
 - Excursion vessels
 - Ferries: short-run, high-speed catamaran, low-speed monohull
 - Pilot vessels
 - Research vessels
 - Tugboats: ship-assist, escort, push-and-tow, ocean-going
 - Workboats/emergency response vessels
- Vessel types are described in Chapter I of the [Staff Report: Initial Statement of Reasons](#)

Original CHC Regulation

- Adopted in 2008, amended in 2010
- Tier 2 and 3 standards for ferry, tug, excursion, crew & supply, barge, and dredge vessels
- Tier 4 or Best Available Control Technology on new ferries carrying 75 or more passengers
- CARB Ultralow Sulfur Diesel (15 ppm) fuel, reporting, and other operational requirements
- Fully implemented by end of 2022

2022 Regulation: Expanded Applicability

2010 Regulation

- Excursion
- Barges under 400 feet
- Dredge
- Crew and Supply
- Ferries
- Tugboats
- Diesel-fueled only



2022 Regulation

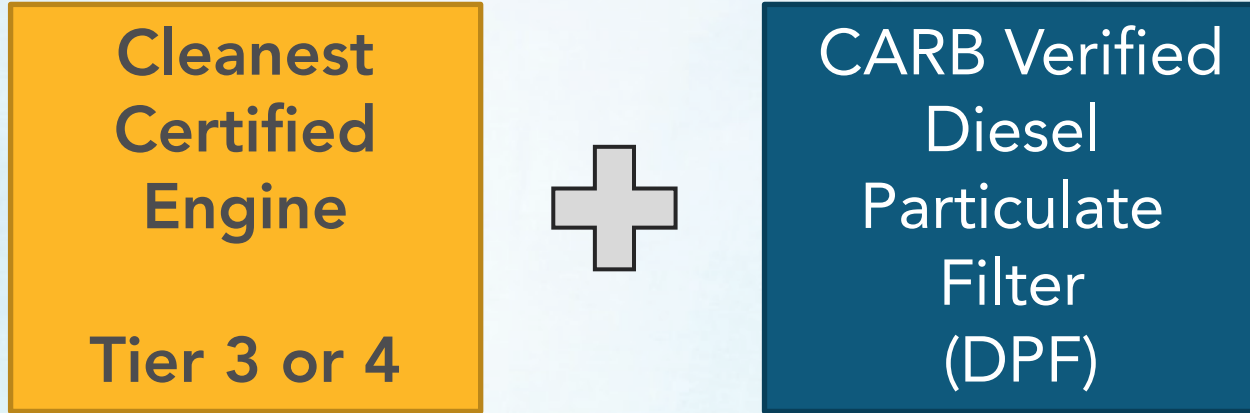
- All commercial vessels
- Workboats
- Pilot
- Research
- Sportfishing
- Commercial Fishing
- Barges over 400 feet
- Engines under 50 hp
- All fuels

Zero-Emission and Advanced Technology (ZEAT) Vessels

- 2025: zero-emission capable new excursion vessels
- 2026: zero-emission short run ferries (routes < 3 nm)
- 2035: additional deployment where feasible through alternative control of emissions



2022 Regulation: Cleaner Combustion



- Tier 4 engines required for <600 kW if certified for duty cycle
- Engines that meet CARB's performance standards in EPA-certified configuration may be used

2022 Regulation: Alternative Compliance Pathways

- **Alternative Control of Emissions (ACE) plan**
 - Demonstration of equivalent emissions reductions
 - Examples: fleet-averaging, early action, zero-emission
 - May not increase emissions in Disadvantaged Communities
 - CARB approval with public process review
- **Zero-Emission and Advanced Technology credit**
 - Zero-emission vessel deployment = additional compliance time on another vessel in fleet
- **Low-Use Exception**
 - Engines operating under annual low-use operational limits do not need to upgrade
 - New low use threshold requirements in 2022 Regulation
 - Requires CARB approval

| Type | Eligibility criteria | Application Window | Duration | Renewal |
|--|--|--|----------|---|
| Infrastructure delays (E1) | Shore power, ZEAT vessels | ≥ 9 months prior to compliance dates 9-12 months prior to extension expirations for renewals | 1-year | 1 renewal, not beyond 2034 |
| No certified engines or DPFs (E2) | Demonstration of lack of certified engines/DPFs | 9-12 months prior to compliance dates or extension expirations | 2-year | Unlimited |
| CPFV Tier 3 (E3) | Demonstration of Tier 3 or better by December 31, 2024 | By July 1, 2024 | 10-year | No renewal |
| Vessel replacement needed (E3) | Demonstration of financial difficulty | ≥ 18 months prior to compliance dates 9-12 months prior to extension expirations for renewals | 2-year | Ferry, CPFV, Excursion vessels: up to 8 years, not beyond 2034 Tier 3+ workboats: unlimited All other vessels: Up to 6 years, not beyond 2034 |
| Limited operating hours (E4) | Tier 4, ≤2600 hours/year or 1300 in DACs, vessel replacement necessary for addition of DPF | 9-12 months prior to compliance dates or extension expirations | 2-year | Unlimited |
| Scheduling extension (E5) | Delays due to manufacturer or shipyard delay | Prior to compliance date | 1-year | Unlimited |

| 2021 & Earlier | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------|------|------|
| IN-USE VESSEL REQUIREMENTS | | | | | | | | | | | |
| Tier 2 or 3 (Tugs, Ferries, Excursion, Crew & Supply, Barge, Dredge) | Any Pre-Tier 1 and 1 → Tier 4* | | | | | | | | | | |
| | (generally Workboats, Research, Pilot, Tank Barges, and CPFV) | | | | | | | | | | |
| | ≤ MY 1993 | MY 1994-2001 | MY 2002+ | | | | | | | | |
| | Tier 2, 3, 4 → Tier 4*+DPF** | | | | | | | | | | |
| | Ferries (Except Short Run), Pilot***, All Tugs | | | | | | | | | | |
| | MY 2007-2009 | MY 2010-2012 | MY 2013-2015 | MY 2016-2019 | MY 2020-2021 | MY 2022+ | | | | | |
| | Tier 2, 3, 4 → Tier 4*+DPF** | | | | | | | | | | |
| | Research, CPFV, Excursion | | | | | | | | | | |
| | MY 2007-2010 | MY 2011-2012 | MY 2013-2014 | MY 2015-2017 | MY 2018+ | | | | | | |
| | Tier 2, 3, 4 → Tier 4*+DPF** | | | | | | | | | | |
| Dredges, Barges, Crew & Supply, Workboats | | | | | | | | | | | |
| | | | | | | MY 2007-2009 | MY 2010-2013 | MY 2014-2017 | MY 2018+ | | |
| Any Pre-Tier 1 and 1 → Tier 3 or Cleaner**** | | | | | | | | | | | |
| Commercial Fishing | | | | | | | | | | | |
| | | | | | | ≤ MY 1987 | MY 1988-1997 | MY 1998+ | | | |
| OTHER VESSEL REQUIREMENTS | | | | | | | | | | | |
| Tier 2, 3, or 4 All New Vessels Tier 3 + BACT New Ferries Carrying 75+ Passengers | "New Excursion: Zero-Emission Capable (e.g., Plug-in Hybrid) 30% or more of power must be derived from a zero-emission tailpipe source" | | | | | | | | | | |
| | New and In-Use Short-Run Ferries: Zero-Emission | | | | | | | | | | |

*All engines ≥600 kW would be required to be certified to Tier 4. For engines <600 kW, a Tier 4 certified engine would be required if certified by U.S. EPA or CARB and available by the compliance date.

**Retrofit DPF requirements would apply to all Tier 3 and Tier 4 engines.

***Pilot vessels at Tier 2, 3, or 4 with MY 2007-2009 would not need to comply until December 31st, 2025

****Commercial Fishing Vessels at Tier 2 by January 1, 2023 require no additional compliance under the 2022 Amendments

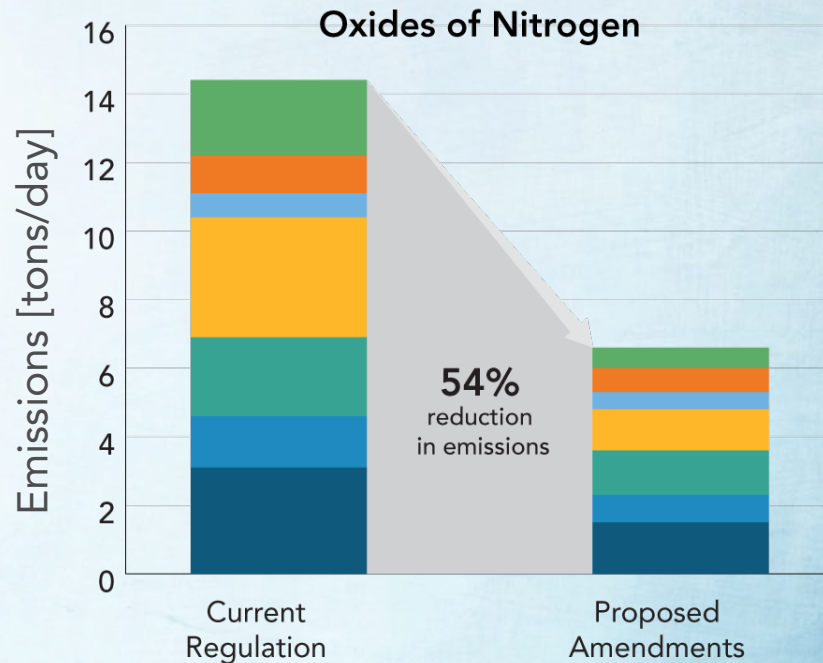
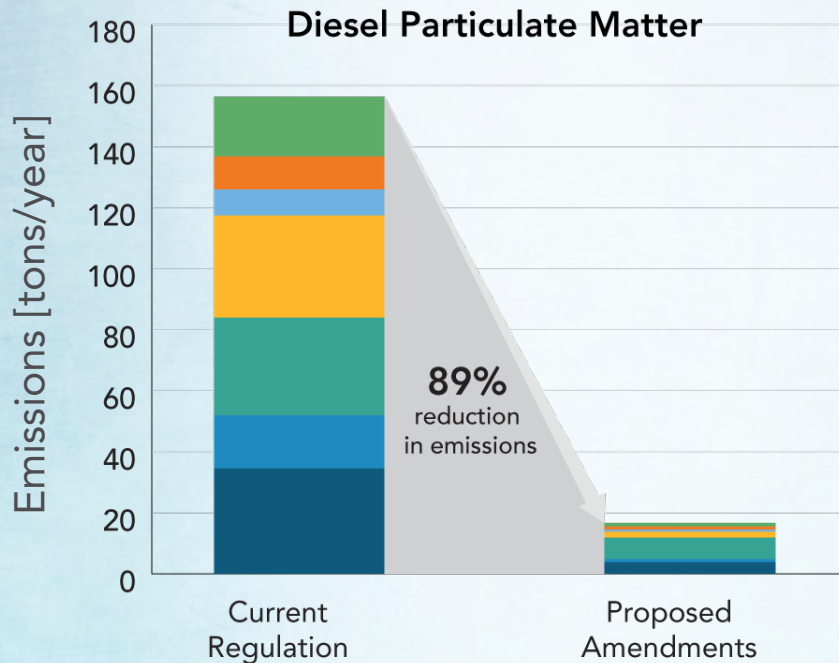
Amendments: Additional Provisions

- Vessel labeling
- Smoke opacity testing
- Annual compliance fees
- Expanded vessel reporting
- Facility infrastructure and reporting
- Compliance fees
- Renewable Diesel (R99)
- Idling limits at dock

CARB 02134



Statewide Emission Benefits in 2035



Ferries

Barge and Dredges

Commercial Fishing Vessels

All Others (Workboats, Pilot, Research, Crew and Supply)

Excursion Vessels

Tugboats

Commercial Passenger Fishing Vessels

Implementation Status

- Staff has been processing extension and low use applications, and answering questions for vessel operators and other stakeholders
- Collection of annual fees began in 2023
- Annual reports due every March 31
- Biennial opacity testing March 31 of even-numbered years
- Expanded enforcement team that is conducting outreach throughout the State
- EPA Authorization in progress

Factsheets and Resources

- Factsheets are available on the CHC Program Webpage
 - Opacity Testing Factsheet and Testing Vendor List
 - Compliance Extensions
 - Funding
 - Alternative Compliance Pathways (ACE, Low-Use, ZEAT credit)
 - Reporting and Vessel Labeling
 - Tier 4 Engine List
 - Send compliance questions to harborcraft@arb.ca.gov