Proposed Amendments to the Ocean-Going Vessel Clean Fuel Regulation

Air Resources Board
Public Hearing
Sacramento, CA
June 23, 2011

California Environmental Protection Agency

Air Resources Board

Overview

- Ocean-Going Vessel (OGV) Clean Fuel Regulation
- Proposed Amendments
- Impacts
- Proposed 15-Day Changes
- Conclusions and Recommendations

OGV Clean Fuel Regulation

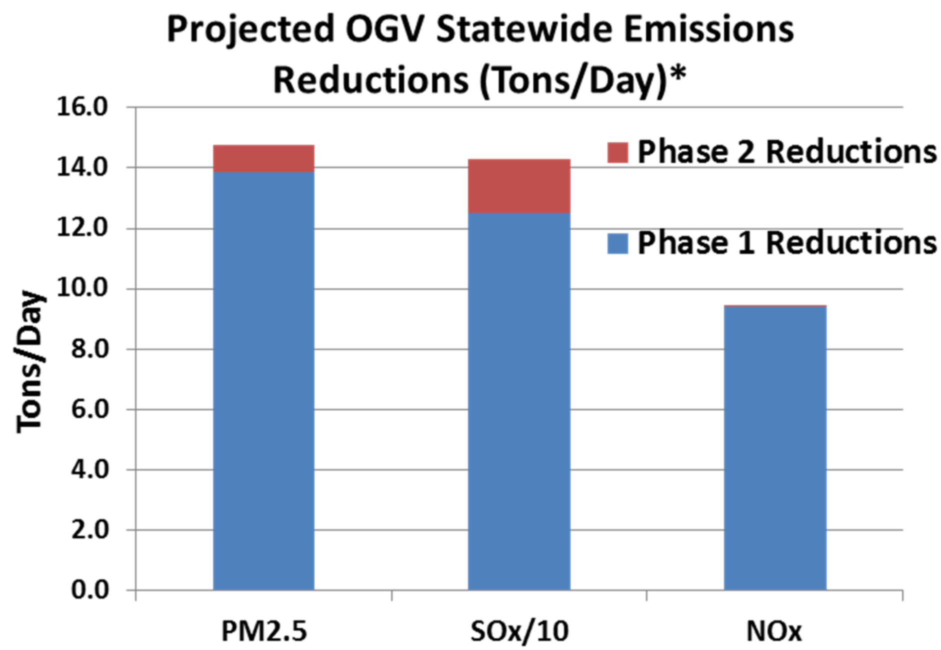
California's OGV Clean Fuel Regulation Establishes Fuel Requirements

- **Requires use of marine distillate fuels**
  - **within 24 nm zone**
- **Two-phase implementation**
  - **July 1, 2009**
    - **use marine gas oil or marine diesel oil***
  - **January 1, 2012**
    - **use marine gas oil or marine diesel oil with 0.1% sulfur limit**

***marine diesel oil limited to 0.5% sulfur**

California's OGV Clean Fuel Regulation Provides Critical Near-Term Reductions

- **Key PM2.5 SIP measure**
- **Provides immediate and significant reductions**
- **Establishes "bridge" to Federal and International Requirements in 2015**



***Emission Estimates for 2013 without proposed amendments**

Proposed Amendments

Implementation Challenges

- **Vessel traffic patterns have changed in Southern California**
  - **vessel operators elected to transit outside regulatory boundary**
  - **results in increased traffic through Pt. Mugu Sea Range**
- **Some operational challenges for vessels**
  - **small number of loss of propulsion (LOP) incidents**
  - **fuel viscosity key variable**
- **Integrating new Federal and International requirements adopted in 2010**
  - **fuel requirements begin in 2012**

Amendments Needed To:

1. Minimize potential impacts on U.S. Navy Pt. Mugu Sea Range

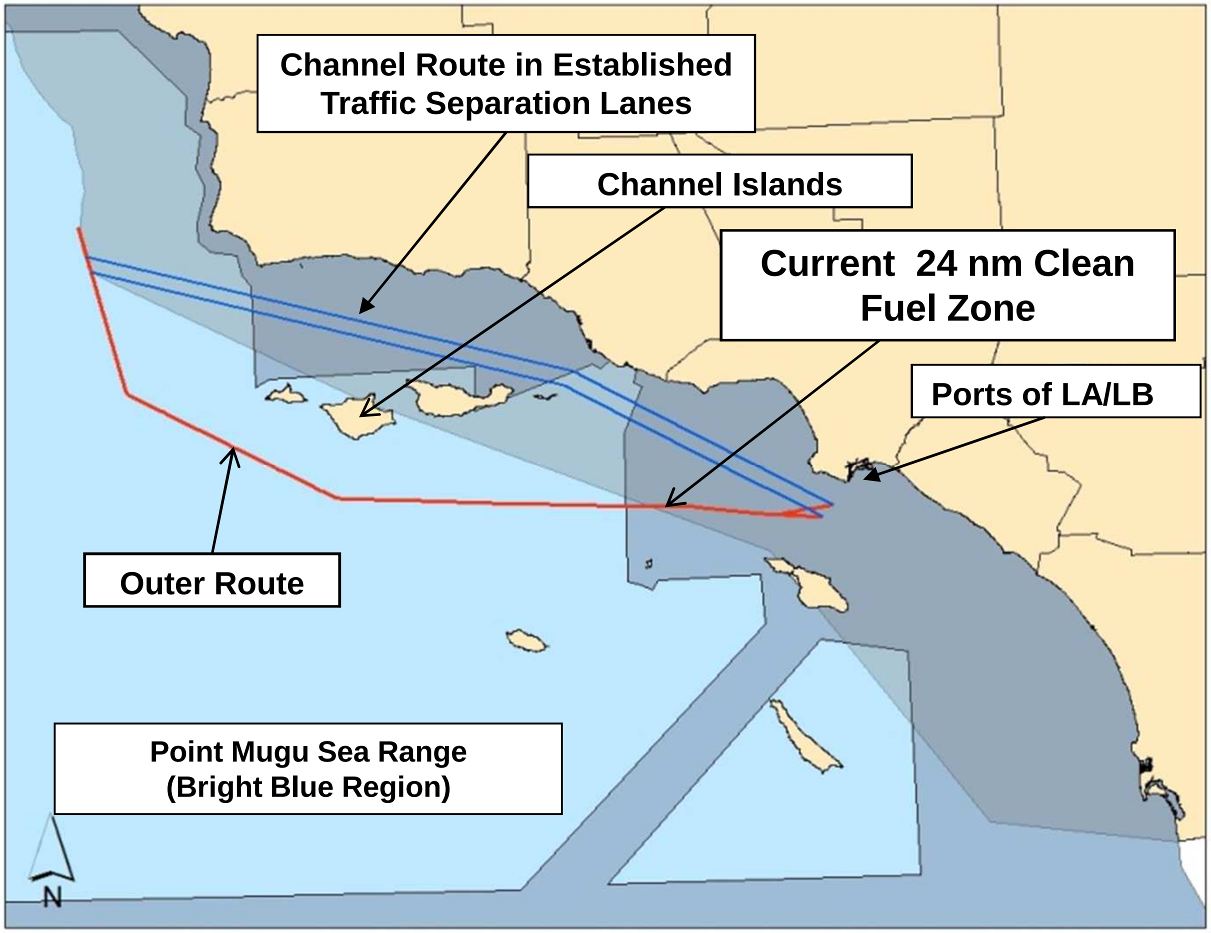
2. Facilitate transition to cleaner 0.1% sulfur fuel

3. Make minor adjustments to assist with implementation

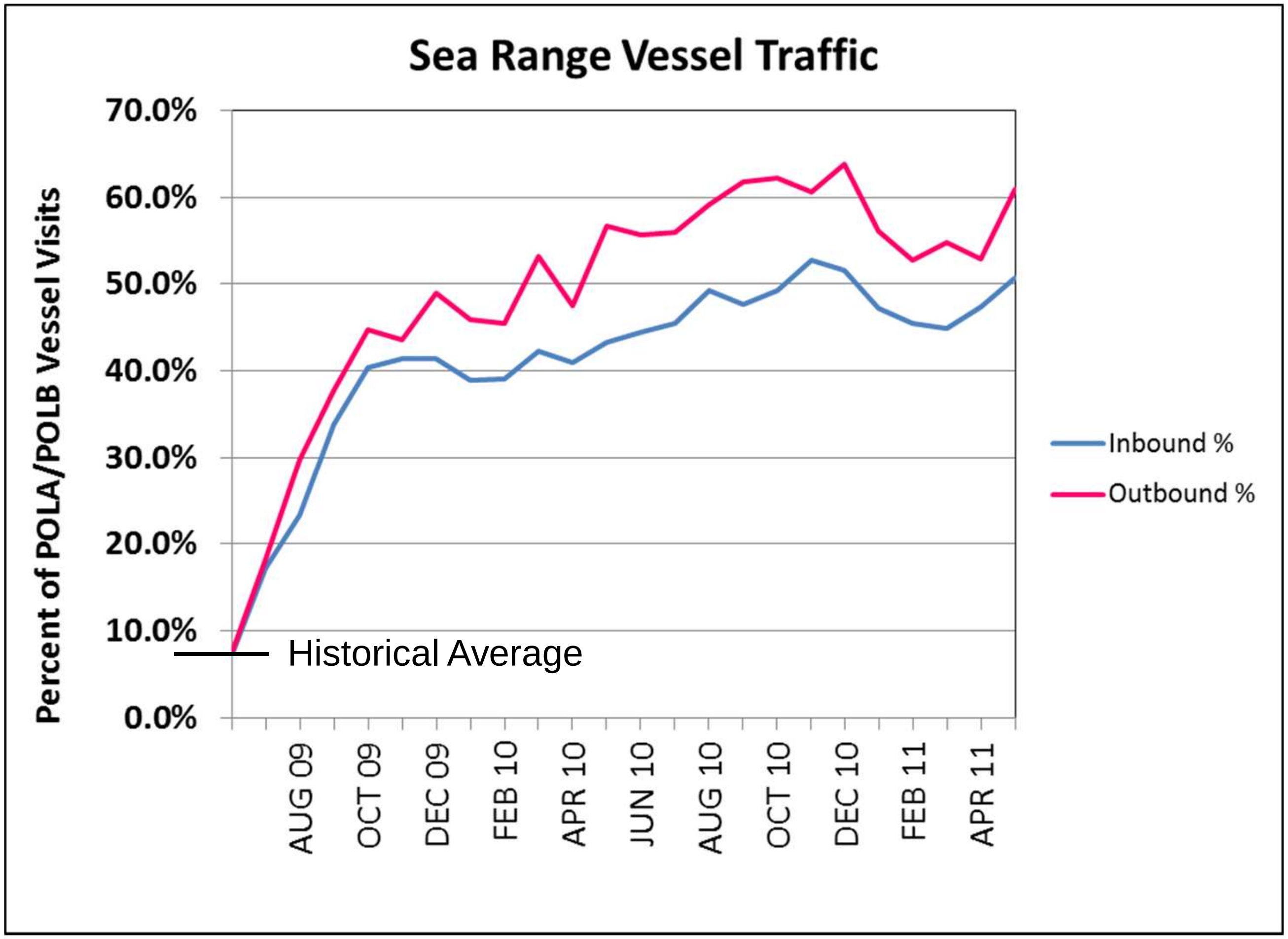
1. Minimize Potential Impacts to U.S. Navy Pt. Mugu Sea Range

- **Extend Clean Fuel Zone in Southern California**
  - eliminate the cost advantage of the Outer Route through the Pt. Mugu Sea Range
  - return most vessel traffic to the Santa Barbara Channel
  - regain emission reductions

Vessel Route Changes in Southern California Since July 2009



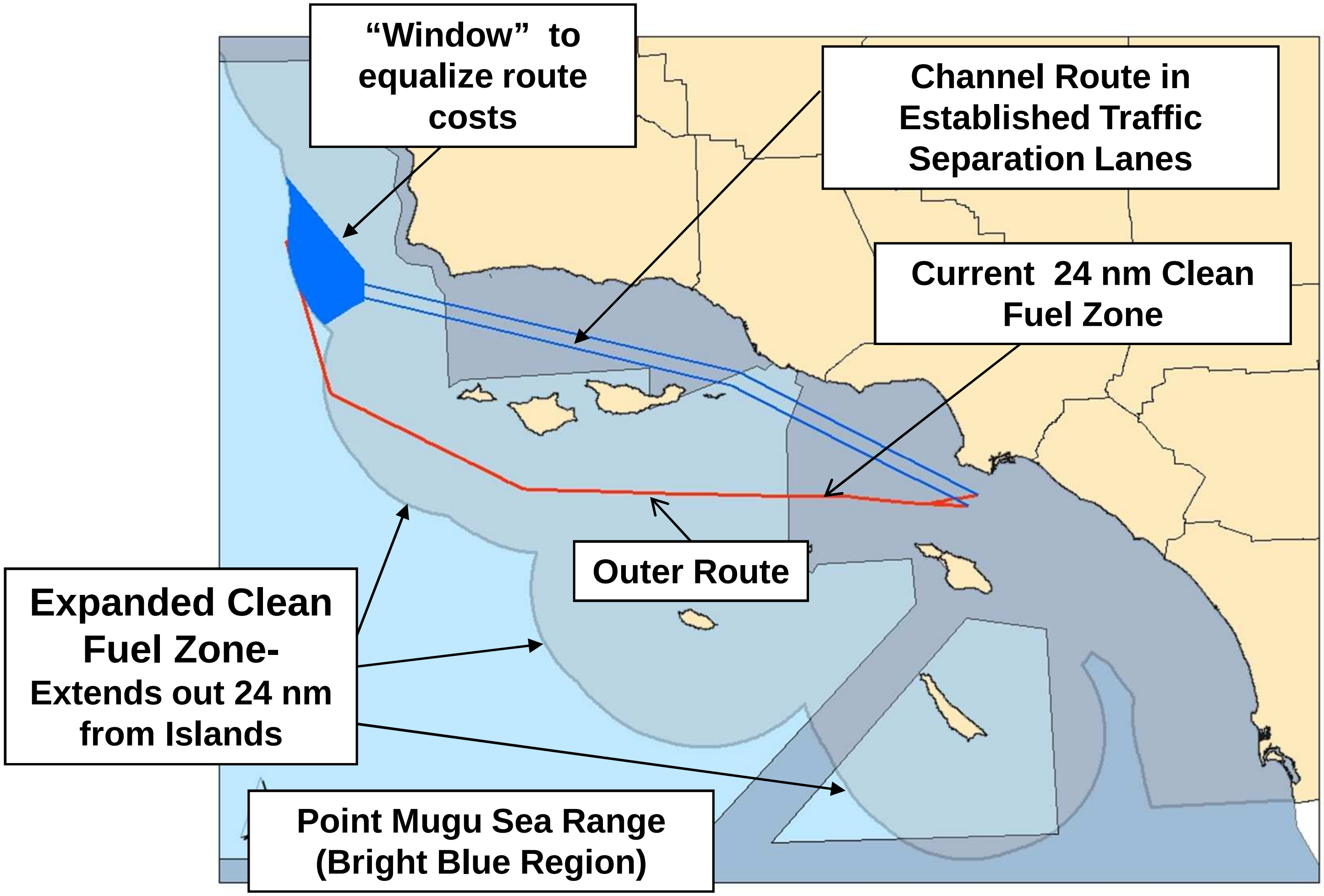
Number of Vessels Transiting Through the Pt. Mugu Sea Range Increasing



Changes in Vessel Traffic Patterns Impacting Pt. Mugu Sea Range

- **Driven by fuel cost differential**
  - **about $3000 lower each way for outer route**
- **Results in increased vessel traffic through the Pt. Mugu Sea Range**
- **U.S. Navy concerned with increased potential for vessels to operations**

Expanded Clean Fuel Zone Minimizes Potential Impact on Sea Range by Equalizing Route Costs



2. Facilitate Successful Transition to Phase 2-- 0.1% Sulfur Fuel

- Propose to extend Phase 1 by two years (Phase 2 begins January 2014)
  - simplify integration of State and Federal OGV fuel programs in 2012
  - provide additional time to address operational issues, fuel property improvements, and fuel availability
- SIP commitment still met in 2014

Phase 1 Extension Simplifies Integration of Federal and International Requirements

- **North American Emission Control Area (ECA) approved in March 2010**
- **Requires**
  - **1.0% sulfur fuel (heavy fuel oil or distillate) in August 2012**
  - **0.1% sulfur fuel in January 2015**
- **ECA zone 200 nm off U.S. and Canada**
- **ARB rule sunsets when ECA is equivalent (2015)**

Proposed Phase 1 Extension Simplifies Transition to ECA

- **Avoids having vessel operators manage two fuel requirement changes in 2012**
- **Allows time for coordination with U.S. EPA, U.S. Coast Guard, and others during transition to 0.1% S fuel requirements**

Extending Phase 1 Provides Additional Time to Address Operational Issues

- Small number of vessels (0.2%) experience temporary loss of propulsion (LOP) related to using distillate fuel
- Working closely with U.S. Coast Guard to address LOPs
- California Maritime Academy identified:
  - low fuel pressure, related to low fuel viscosity, as an area of concern
- Extending Phase 1 provides
  - additional time to determine causes/solutions for LOPs
  - more flexibility to find higher viscosity fuel
  - time for enhancements to fuel specs to reach fuel market

3. Other Minor Adjustments to Assist Implementation

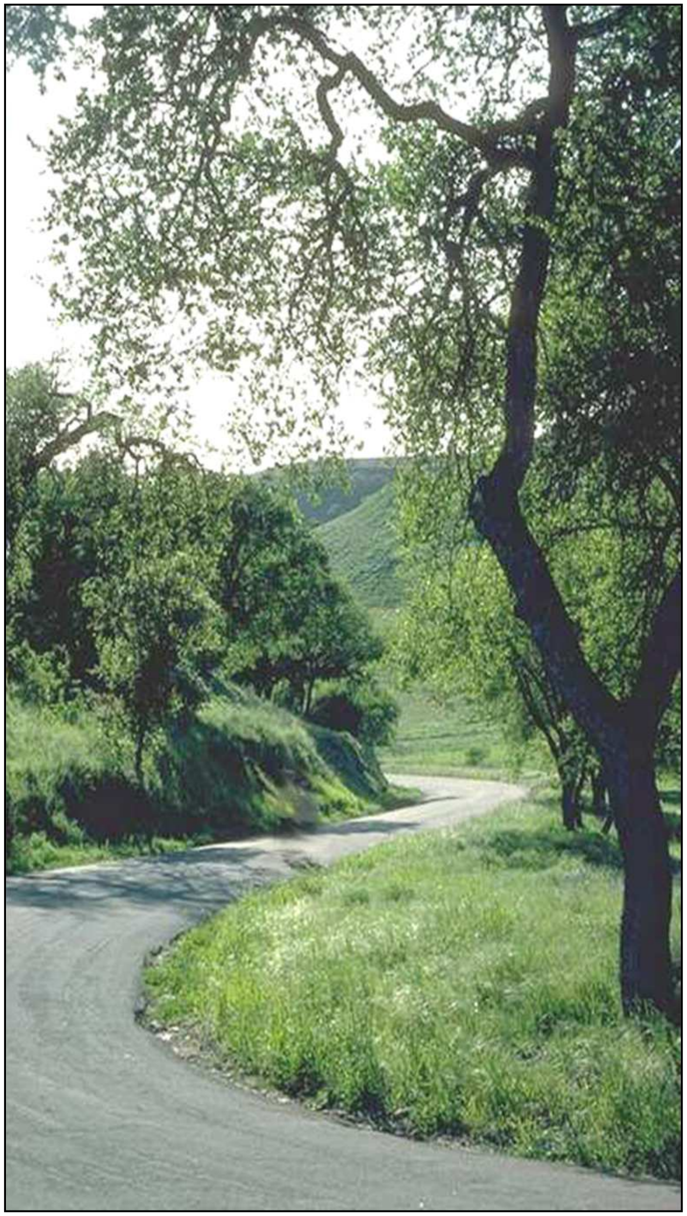
- Incorporation of revised International ISO 8178 fuel specification
  - higher viscosity grade
  - lubricity specifications added
- Updated nautical chart
- Modifications to Noncompliance Fee Provision

Proposed Amendments to "Noncompliance" Fee

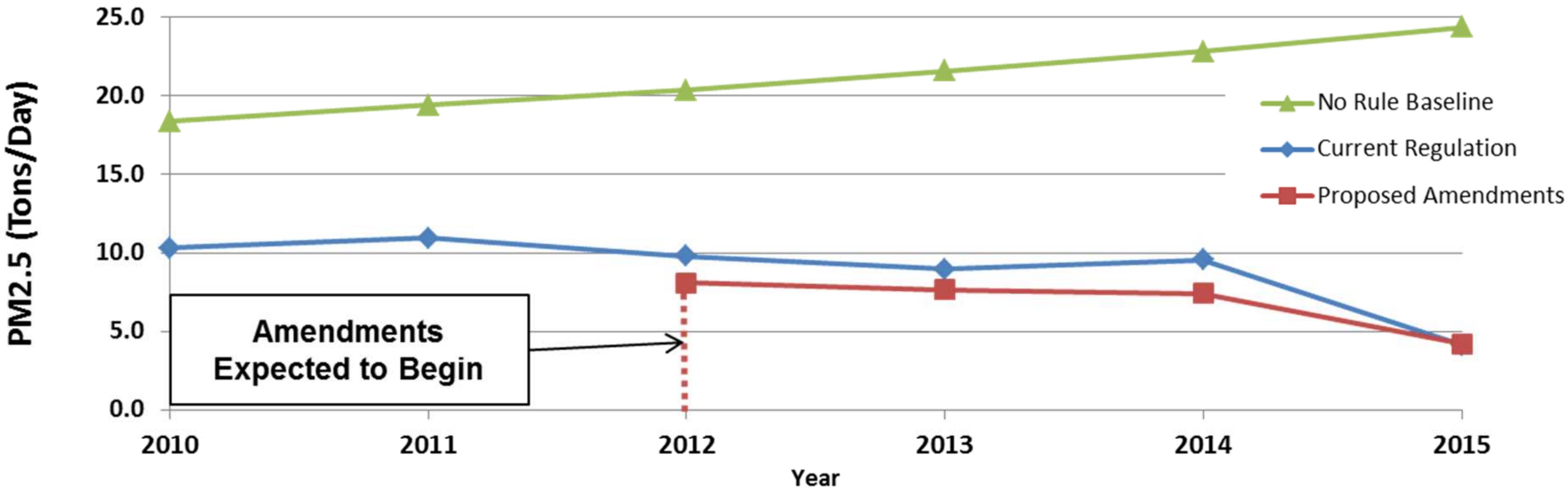
- **Regulation allows fee in place of using compliant fuel in very limited situations**
- **Proposed amendments:**
  - **restructure fees to encourage purchase of compliant fuel on arrival to California**
  - **retain fees for first port visit ($45,500)**
  - **adjust second port visit to $45,500 (from $91,000)**
  - **all subsequent visits increase by $45,500**
  - **fees at least 1.5 times higher than direct compliance**

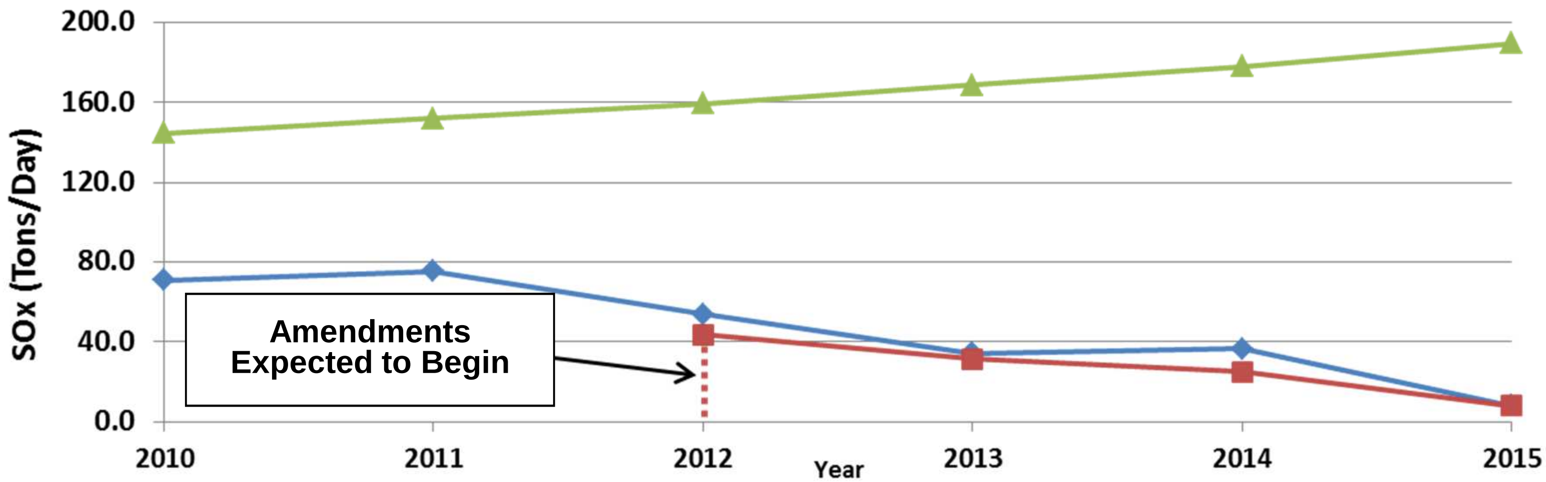
Port Visit	Per Port Fee	Total Visit Fee
1st Port Visited	$45,500	$45,500
2nd Port Visited	$45,500 ~~$91,000~~	$91,000 ~~$136,500~~
3rd Port Visited	$91,000 ~~$136,500~~	$136,500 ~~$182,000~~

Impacts



Proposal Maintains Substantial Statewide Emissions* Reductions and Health Benefits





***Estimated Statewide OGV Emissions (100 nm Emissions Domain)**

Other Impacts

- Phase 1 extension temporarily results in slightly lower reductions
- Potential impact to whales
  - for vessels returning to channel route, impact will be similar to that before regulation adopted

Economic Impacts

- **Total estimated costs**
  - **$10 million per year in 2012 and 2013**
  - **$47 million in 2014**
- **Phase 1 extension provides cost savings relative to estimated costs for original rulemaking**
- **Cost effectiveness ~$16 per pound of diesel PM reduced**

Proposed 15-Day Changes

Proposed 15-Day Changes

- **Align Phase 1 sulfur limit for marine gas oil with ECA Phase 1 sulfur limit of 1%**

Conclusions

- Proposal assists successful transition to 0.1% sulfur fuel
- Removes economic advantage that drives route changes
- Allows staff time to manage operational and fuel concerns
- Fulfills 2014 SIP obligation
- Cost effective

Recommendations

- **Recommend Board adopt proposed amendments with suggested 15-day change**
- **Direct staff to monitor changes in vessel traffic and impact on Pt. Mugu Sea Range**
- **Continue work with U.S. Coast Guard and others on operational issues**