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

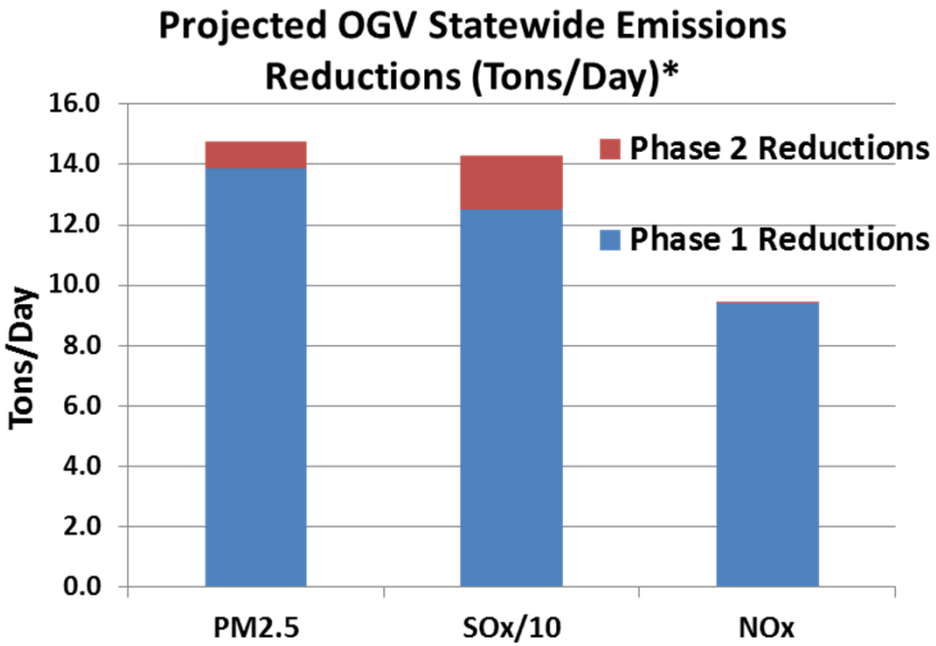
California's OGV Clean Fuel Regulation Establishes Fuel Requirements

- **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**

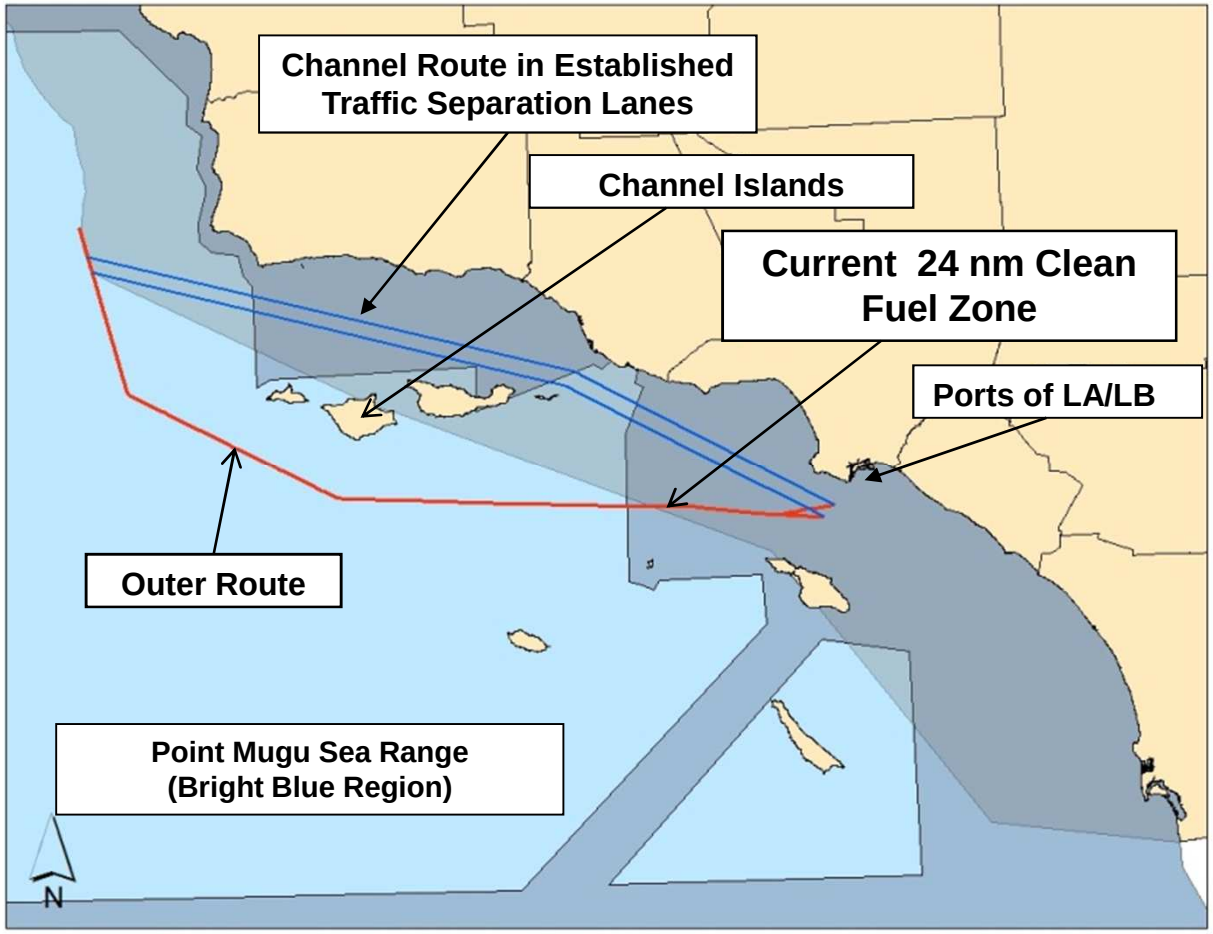
2. **Facilitate transition to cleaner 0.1% sulfur fuel**

3. **Make minor adjustments to assist with implementation**

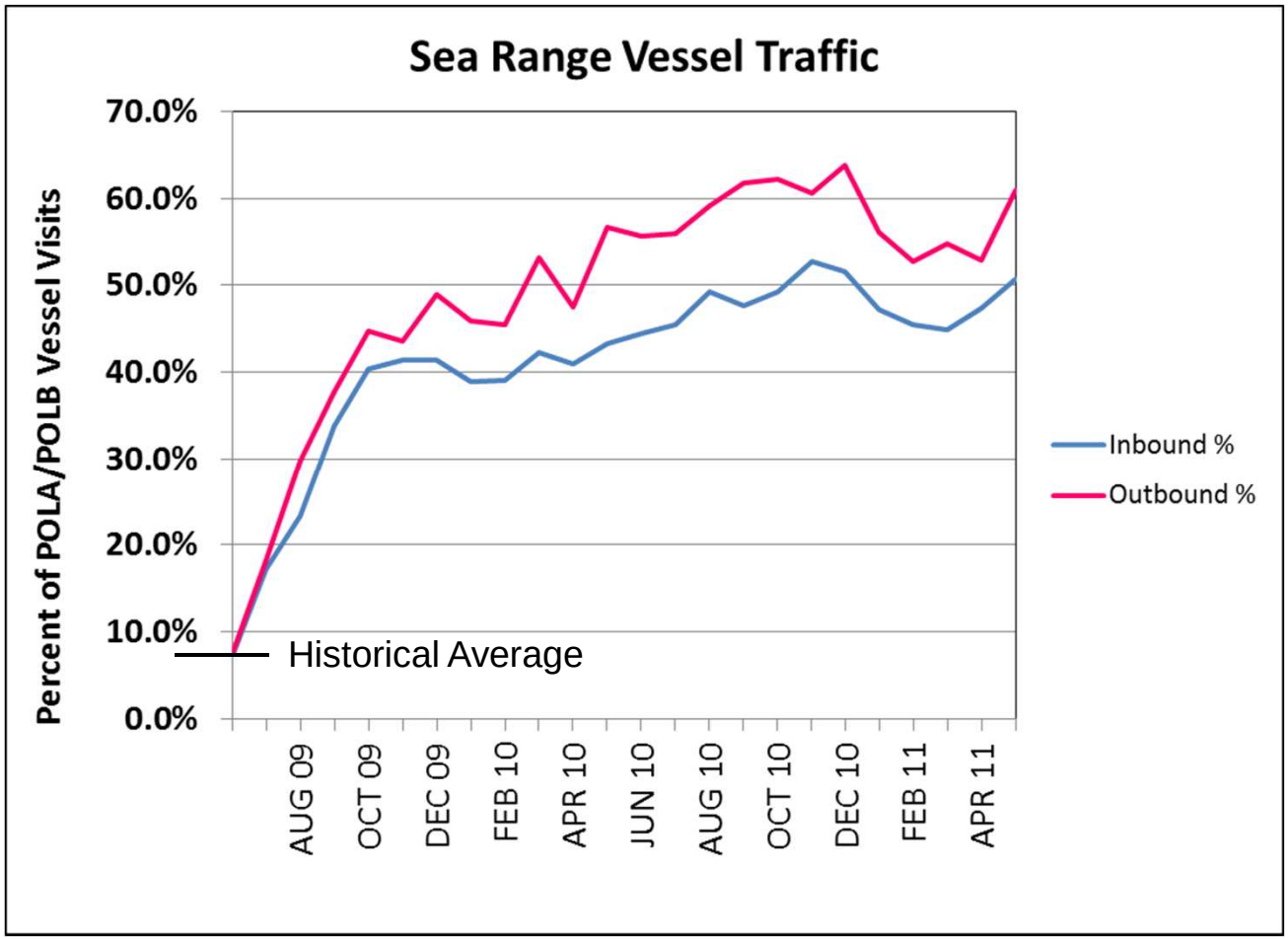
1. Minimize Potential Impacts to U.S. Navy Pt. Mugu Sea Range

- **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



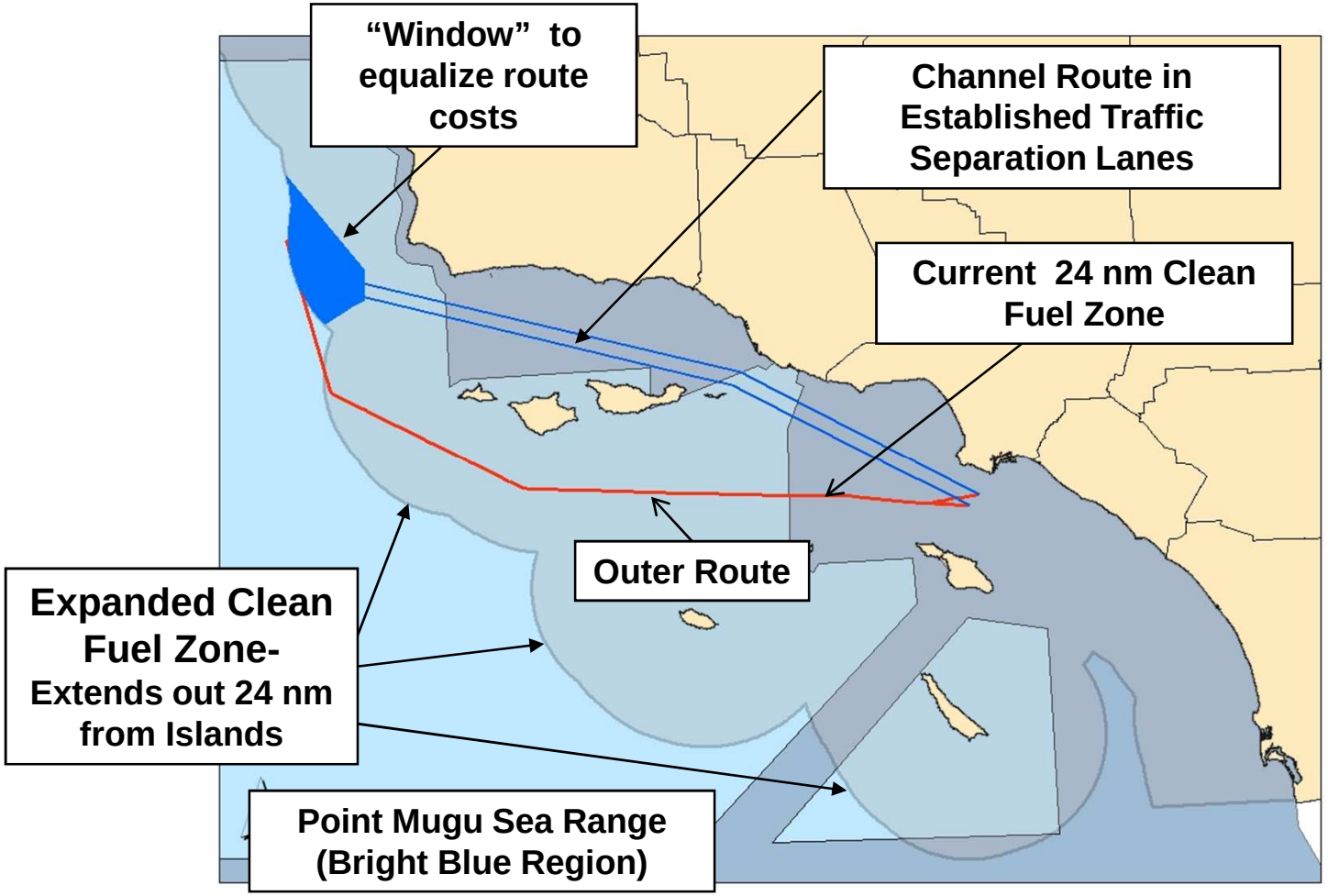
Number of Vessels Transiting Through the Pt. Mugu Sea Range Increasing



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

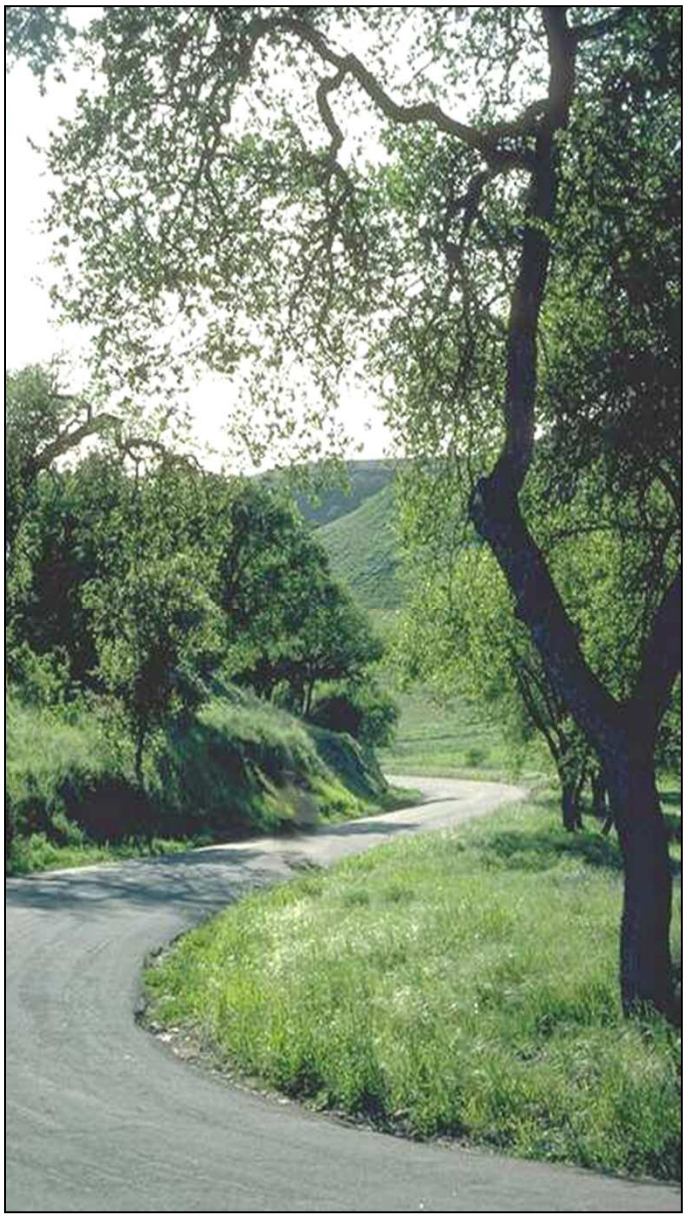
- **Incorporation of revised International ISO 8178 fuel specification**
  - **higher viscosity grade**
  - **lubricity specifications added**
- **Updated nautical chart**
- **Modifications to Noncompliance Fee Provision**

Proposed Amendments to "Noncompliance" Fee

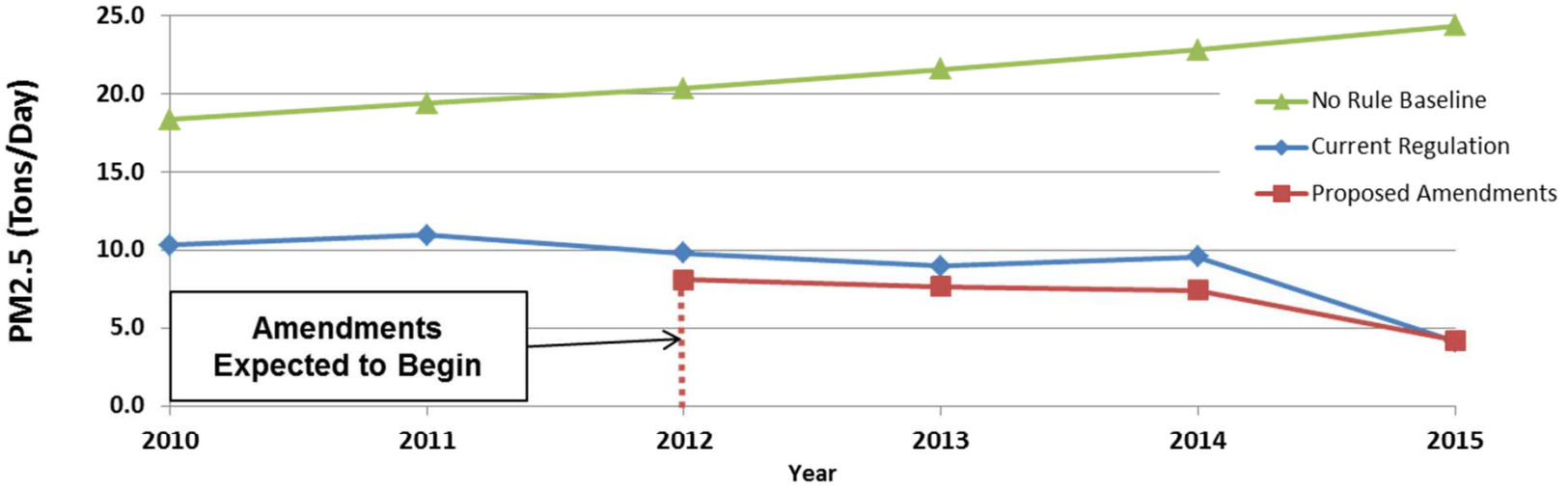
- **Regulation allows fee in place of using compliant fuel in very limited situations**
- **Proposed amendments:**
  - **restructure fees to encourage purchase of compliant fuel on arrival to California**
  - **retain fees for first port visit ($45,500)**
  - **adjust second port visit to $45,500 (from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

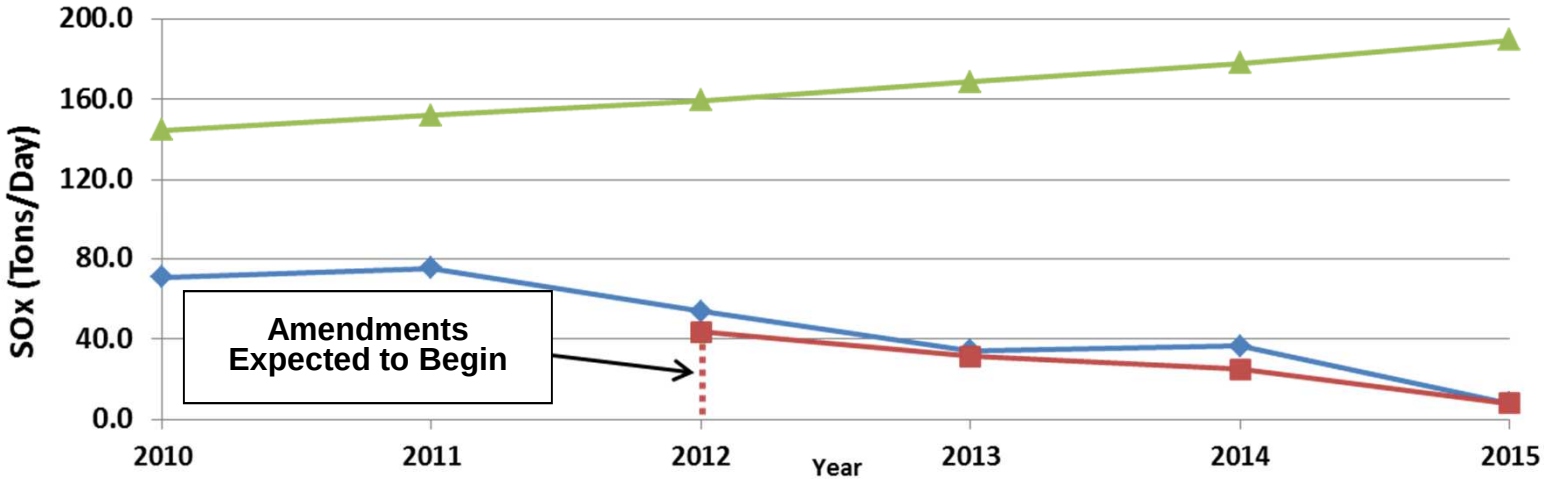
Port Visit	Per Port Fee	Total Visit Fee
1st Port Visited	$45,500	$45,500
2nd Port Visited	$45,500 ~~$91,000~~	$91,000 ~~$136,500~~
3rd Port Visited	$91,000 ~~$136,500~~	$136,500 ~~$182,000~~

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

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- **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**