Marine Shipping Update

Board of Directors
Santa Barbara County
Air Pollution Control District

Inspiration Pt, Anacapa Island

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Director / APCO
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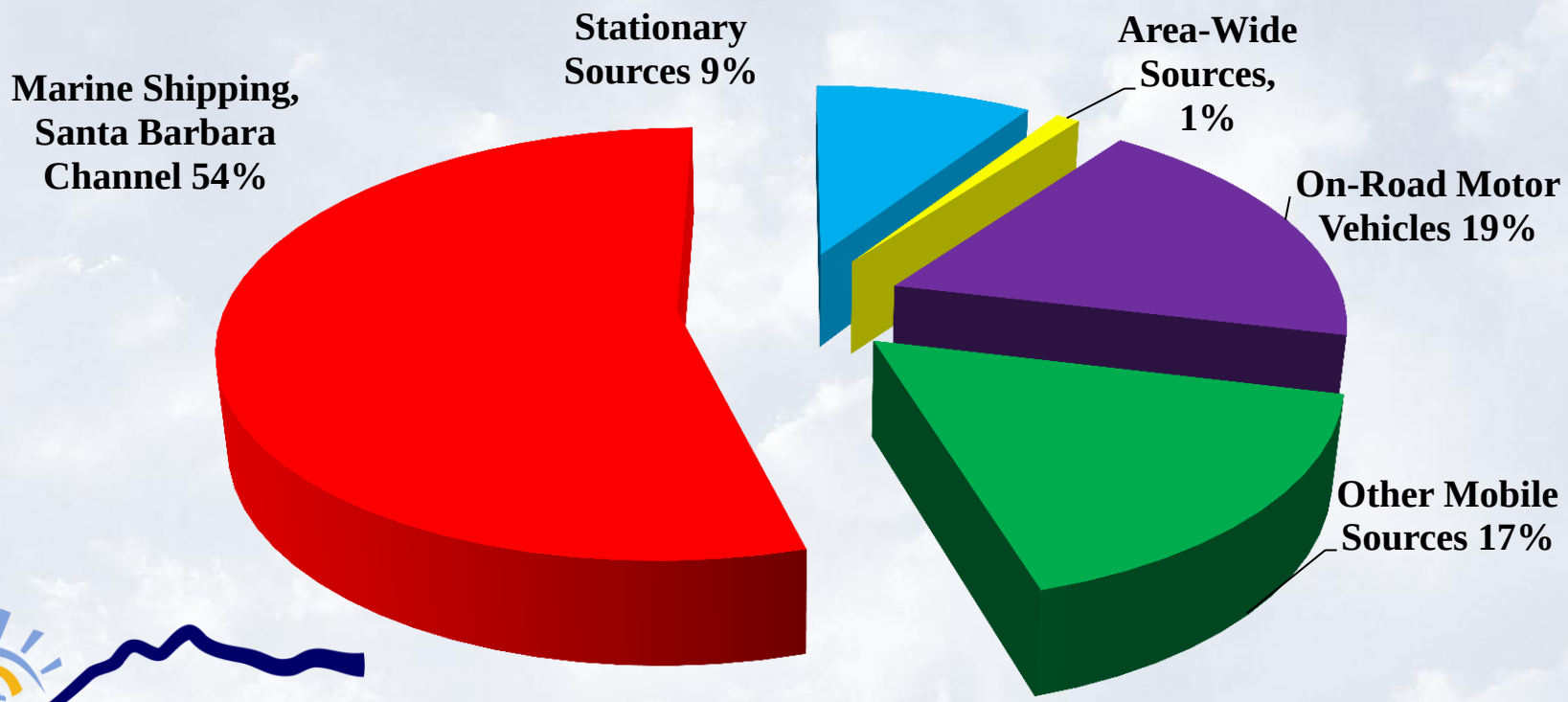
www.OurAir.org

Background

- Shipping a major source of air pollution:
  - Diesel particulate, air toxics, sulfur dioxide, greenhouse gases
  - Ozone-forming pollutants – nitrogen oxides (NOx) and reactive organic compounds

County Sources of NOx (2010 Clean Air Plan)



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Update Overview

- State Fuel Rule
- Coast Guard Study
- International Regulations
- Meeting with Maersk Lines
- Conclusions & Variables
- Looking Ahead

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State Fuel Rule

- Jul 2009: lower-sulfur fuel mandated when vessels travel through Santa Barbara Channel (24nm off CA coast)
- Goal: reduce stack emissions of diesel particulate, toxics, and sulfur
- Ships went around Channel to avoid rule
- Effective Dec 2011: rule extended to 24nm outside Channel Islands

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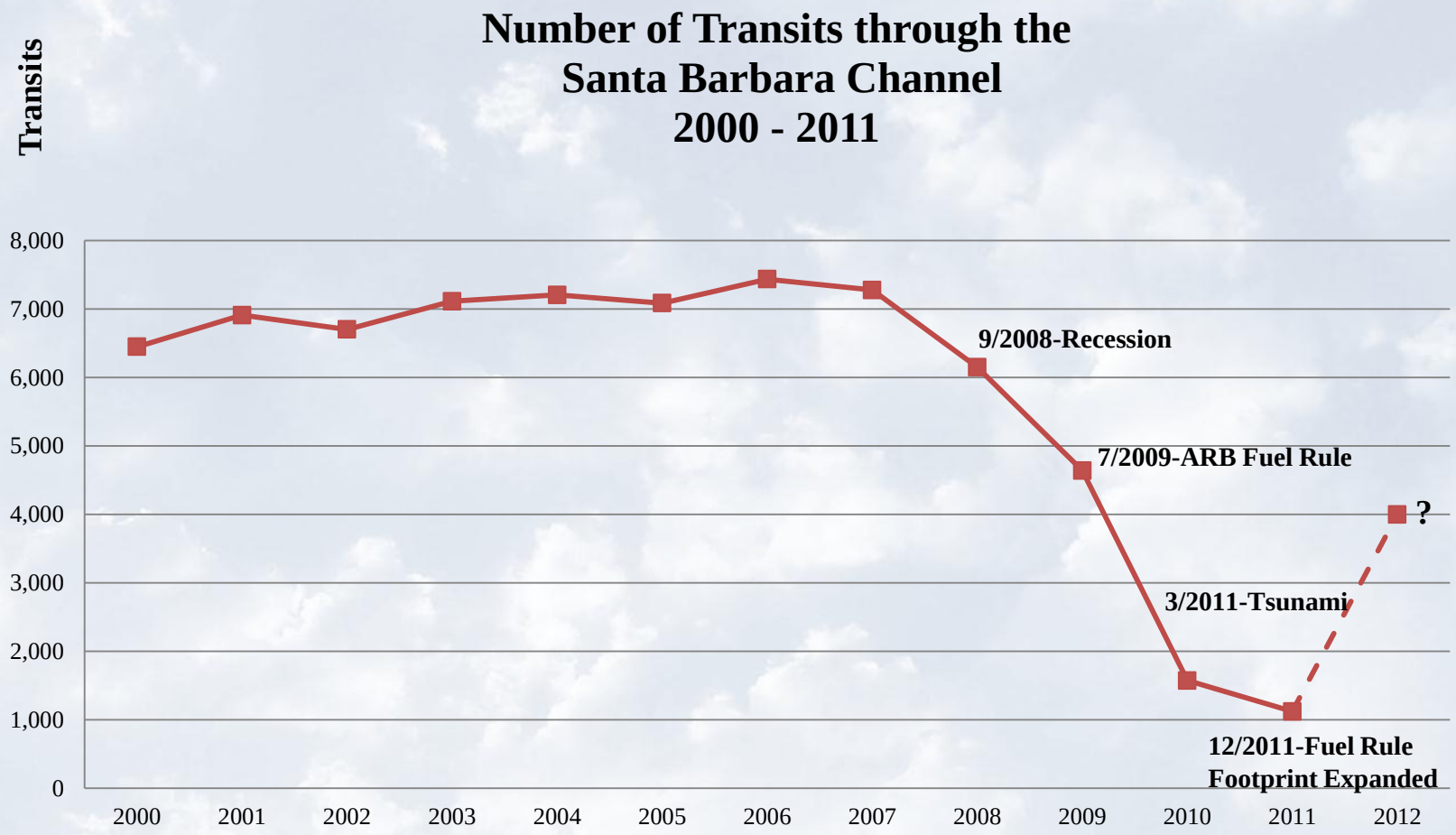
Channel Trip Trend



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Emissions Benefits Documented

- NOAA plane flies over Maersk ship
- Measures pollutants from stack before and after switch to low-sulfur fuel (state fuel rule) and voluntary speed reduction
- Several pollutants, including particulate and sulfur dioxide, reduced by 90%
  - Did not measure NOx

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Coast Guard Study

- Port Access Route Study initiated Apr 2010
  - Concerns about ship traffic in area outside Channel without approved shipping lanes and in Navy missile testing range
  - Focus on safety, traffic management, marine environment
- Study released Nov 2011 – recommended:
  - Creating new traffic lanes outside Islands
  - Moving existing lanes closer together (further north of Islands, protecting marine sanctuary)
- Federal rulemaking required to implement

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Emission Control Areas

- International Maritime Organization designates Emission Control Area (ECA)
  - Ships traveling up to 200 miles off North American must meet stricter fuel and new engine standards
  - Fuel sulfur limits effective Aug 2012 – different standards and timeline than state

North American ECA

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February Meeting with Maersk

- Met with Lee Kindberg, Director of Environment and Sustainability, Maersk Shipping Lines
- Representatives from District Board, APCD staff, NOAA, Environmental Defense Center, UCSB Bren School, Star Crest (emissions inventories)
- Initiate discussion and exchange with shipping industry leader

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Maersk Overview

- Largest container shipping company in the world
- Green leader in industry
  - Only shipping company to support creation of the North American ECA

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Maersk Green Initiatives

- Voluntarily reducing fuel sulfur levels
- Steady steaming
  - Fuel use and costs increase exponentially at higher speeds; lowest ***constant*** speed is best
- Low carbon leadership
  - Documenting supply chain for customers
  - Quantify and verify GHG reductions

Verified by: Lloyd's Register 250 YEARS OF SERVICE

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Clean Cargo Working Group

clean CARGO Sustainable Transportation

Industry Efforts to Measure and Reduce Environmental Impacts

www.bsr.org

Clean Cargo Working Group is a business-to-business forum with the goal "to promote more sustainable product transportation."

CCWG's membership (2010)

Carriers

Hapag-Lloyd, MAERSK, HANJIN SHIPPING, HAMBURG SÜD, NYK LINE, K LINE, YANG MING GROUP, HMM, CMA CGM, MOL, APL, Moving Business Forward, OOCL We take it personally, CSAV, DAMCO

Shippers

WAL★MART, NIKE, NORDSTROM, IKEA, Coca-Cola, Electrolux, STARBUCKS COFFEE, Johnson&Johnson, AMERICAN EAGLE OUTFITTERS, POLO RALPH LAUREN, PVH

BSR

NVOCCs

DHL, KUEHNE+NAGEL

- Standardized footprint calculation tools
- Annual environmental performance survey and benchmarking
- Working to harmonize environmental calculations globally
- Emissions factors published by trade lane.

MAERSK LINE

June 15, 2011 Slide no. 29

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Industry Challenges

- Need to make it to ports by time certain
  - Slowing speeds means adding vessel to route
  - Costs of slipping on schedule
- Concerns about ability to steer ship at slow speeds

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Additional Variables

- Potential for route changes away from CA ports and air quality improvements
  - Panama Canal expansion will allow larger ships through Canal
  - Expense of lower sulfur fuel (ECA and state) a factor
  - Sustainability initiatives reducing costs and environmental impacts

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Looking Ahead

- Information gathering
  - Continue to meet with industry, ports, partners
  - Increase data capture and accuracy
  - Interest in vessel speed reduction for potential NOx and GHG reductions
  - Following state speed reduction study

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