



Sustainability Challenges of the “GREEN RANGE”

NAV  AIR

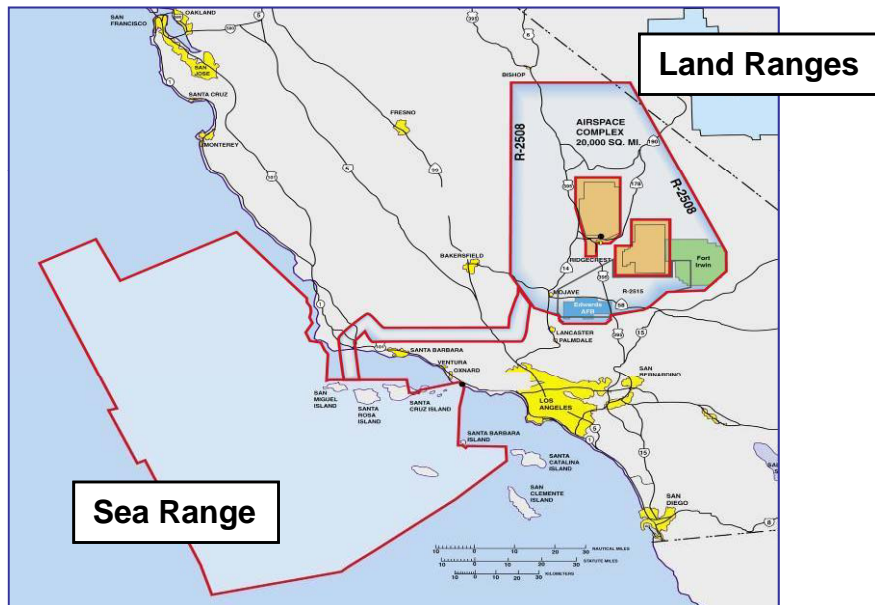
**Tony Parisi
Head, Sustainability Office
NAVAIR Ranges
20 October 2010**

Overview

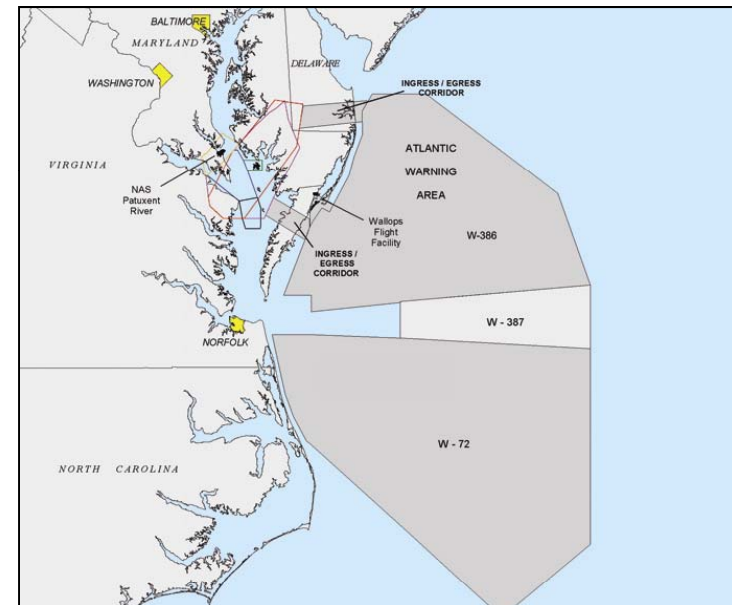
- NAVAIR Ranges & Sustainability Office
- Urban Development
- OCS Energy Development
- Renewable Energy Development
- California Low-Sulfur Fuel Regulation

NAVAIR Ranges

Pacific Ranges



Atlantic Ranges



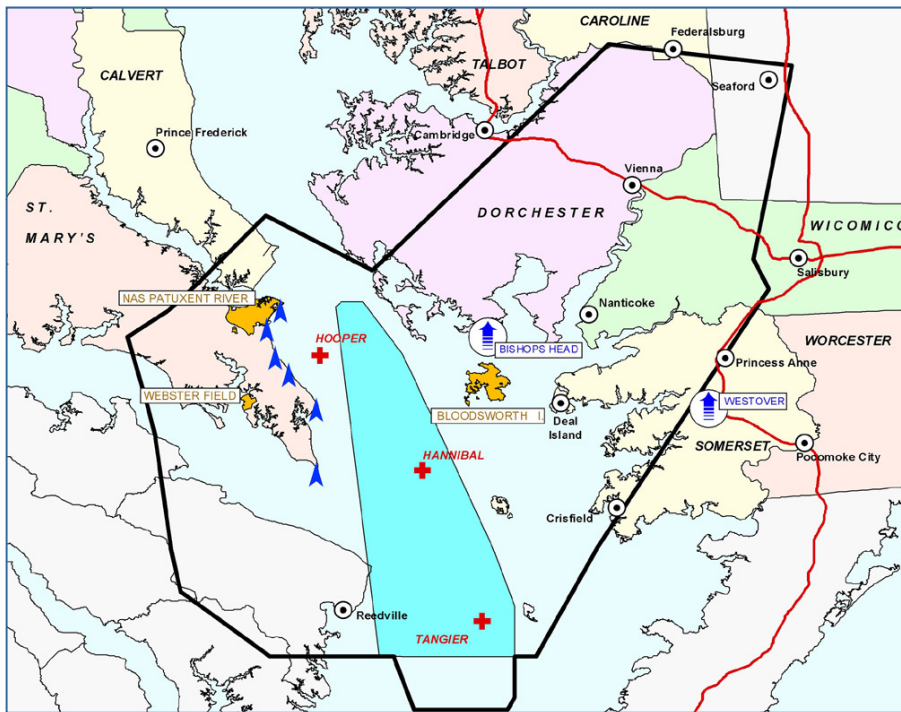
- Chesapeake Test Range
- Atlantic (Off-Shore) Warning Areas

Sustainability Office

- Mission: Support the fleet's sustainable readiness by ensuring the NAVAIR Team has access to ranges, facilities, resources and public support for its test, training, evaluation and experimentation mission.
- What Do We Do?
 - Environmental planning for ranges
 - Encroachment prevention & management
- Approach
 - External engagement/outreach
 - Coordination with Installations, Fleet, Other Services, Regions, RECs and others
 - Enhanced Readiness Teams
- Senior leadership involvement & support is critical

Urban Development

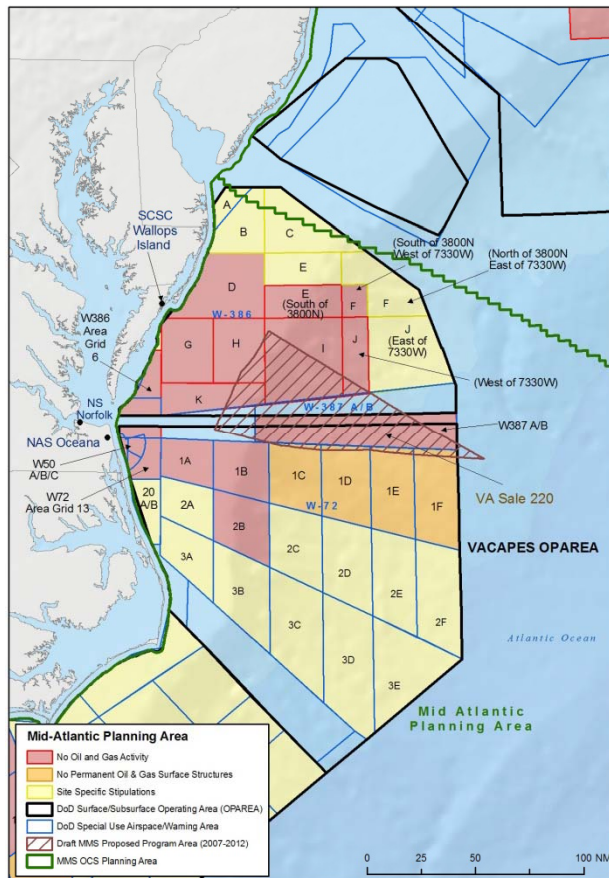
Atlantic Test Range



- Increased development in Lexington Park, MD Eastern Shore, & VA Northern Neck
- Substantial outreach/engagement
- Encroachment partnering/REPI project for easements to prevent incompatible development

OCS Energy Development

Atlantic Test Range



- Oil & gas
- Wind energy
- Engagement with USFF & OSD tiger team to identify areas of incompatible development
- Engagement/outreach with Maryland & Virginia

Existing & Proposed Wind & Solar Energy Projects



Renewable Energy Mission Impacts

- Wind Energy
 - Low-level airspace
 - Ground based radars/telemetry
 - Airborne radars
- Solar Energy
 - Glint/glare
 - Affect on infrared sensors
 - Habitat destruction (secondary effect)

NAVAIR Airborne Radar/Wind Turbine Testing

- Tested airborne RADAR Implications Against Wind Turbine Installations in Region
- Assessed Impacts of Turbines on Current & Future Test Capabilities
 - Conducted Open Air Testing in Various Flight Scenarios
 - Actual Wind Turbine Truth Data Utilized for all Testing

State of the Art Wind Turbine

- Tower Height: ~328 ft
- Rotor Diameter: ~ 361 ft
- Rated Capacity: ~ 3 MW
- Cut-in wind speed: ~6.8 kts
- Cut-out wind speed: ~52 kts
- Rated wind speed: 27 kts
- Rotor speed: 8.5 – 15.3 rpm
- Blade tip speed: ~170 kts



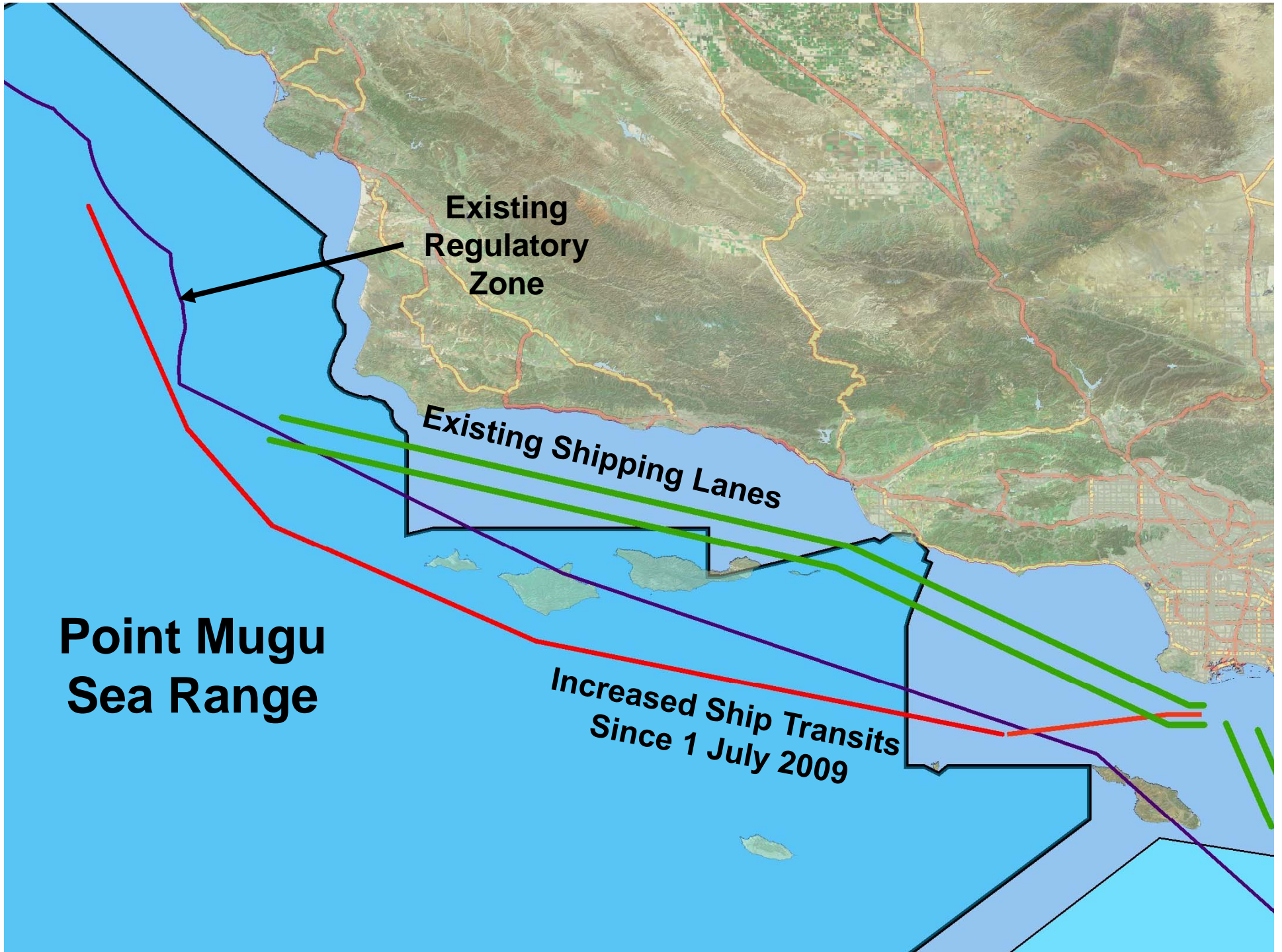
Radar Test Results

- Increased Processing Time
 - Busy Processing False Targets Vice Actual Targets
- Inability to Acquire Targets
 - Too Many Targets or too Much Noise to see Targets
- Detailed Results Available in Classified Brief
- Implications
 - Airborne RADAR “Laboratory” Would be Destroyed by Turbines
 - Inability to Field Weapons Systems to Warfighter
 - Training???
- No current mitigation
- Additional testing planned

California Low-Sulfur Fuel Regulation

Point Mugu Sea Range

- Most shipping uses Traffic Separation Scheme (Santa Barbara Channel)
 - Exceptions: Supertankers
 - Average of 2 ships/day on range
 - Minimal impact on Sea Range operations
- California regulation requires low-sulfur fuel within 24 nm of mainland – effective 1 JUL 2009
 - Significant Navy involvement/objection
- Since regulation went into effect, traffic avoiding the Santa Barbara Channel has increased to over 14 ships/day



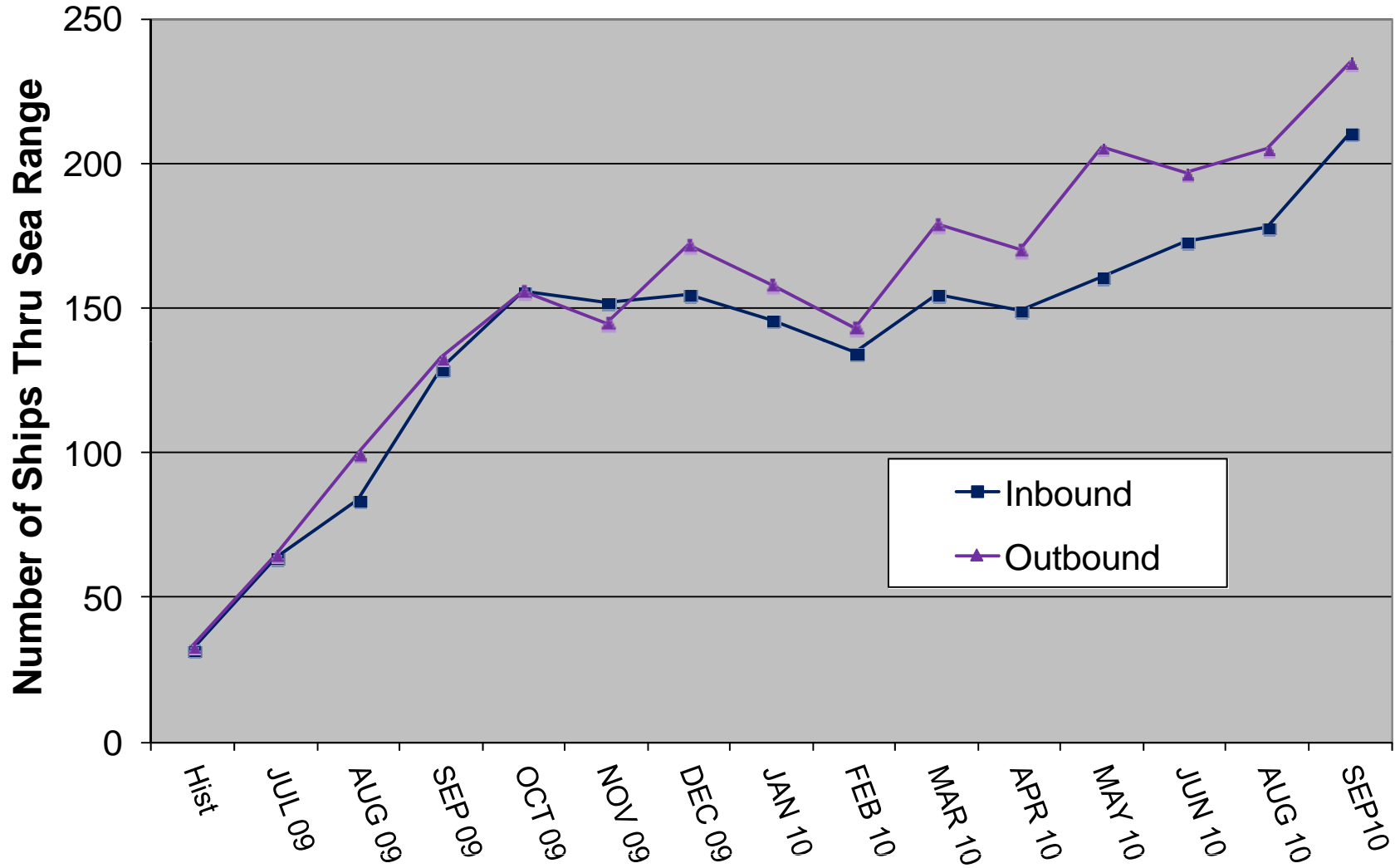
**Existing
Regulatory
Zone**

Existing Shipping Lanes

**Point Mugu
Sea Range**

**Increased Ship Transits
Since 1 July 2009**

Sea Range Ship Traffic



California Low-Sulfur Fuel Regulation

What Are We Doing?

- Established communications with shipping industry through LA/LB Marine Exchange
- Monitoring impacts
 - Minimal operational delays
 - Redirecting significant number of ships
- Engaged with CA Air Resources Board
 - CARB is modifying regulation to remove financial incentive to leave the Santa Barbara Channel
 - Unclear if change will be enough

California Low-Sulfur Fuel Regulation

Operational Impacts

- Minimal until recently
- CSSQT delay
- Two tests cancelled but unclear if unrelated to low-sulfur reg
 - Ships well beyond 24 nm
 - 9 APR 10: F-22 Small Diameter Bomb
 - 25 MAY 10: X-51A Test

California Low-Sulfur Fuel Regulation

What's Next?

- USCG studying formal shipping lanes through Sea Range
 - NAVAIR engaged
- CA Air Resources Board has considered formal regulation to reduce vessel speeds in existing channel, up to 100 nm from ports within 24 nm or 40 nm from mainland
 - Now saying speed reduction can't be limited to SB Channel
- Whale strikes: Proposals to reduce speed to 10 knots in SB Channel
 - No good species data outside SB Channel
- US EPA Emissions Control Area (ECA) off the West Coast
 - Will supersede CA regulation in 2015 but not speed reduction

Summary

- Significant external encroachment issues but no major impacts – yet
- Significant resources required