

How NOAA, USCG, and maritime industry collaborated to move shipping lanes away from endangered whale-feeding grounds



NOAA cross-line office team

Stephanie Altman (GC)

Trisha Bergmann (OIA)

Michael Carver (CBNMS)

Monica deAngelis (NMFS WCR)

Sean Hastings (CINMS)

Karen Reyna (GFNMS)

Jessica Redfern (NMFS SWFSC)

Elizabeth Petras (NMFS WCR)

Lisa Wooninck (ONMS WCR)

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Outline



- ISSUE: whale ship strikes
- USCG Port Access Route Study (PARS)
- PARS - San Francisco/Oakland
- PARS - Long Beach/Los Angeles: risk assessment
- PARS proposals at the IMO
- Shipping lane changes
- Current activities
- Acknowledgements



Issue: whale ship strikes

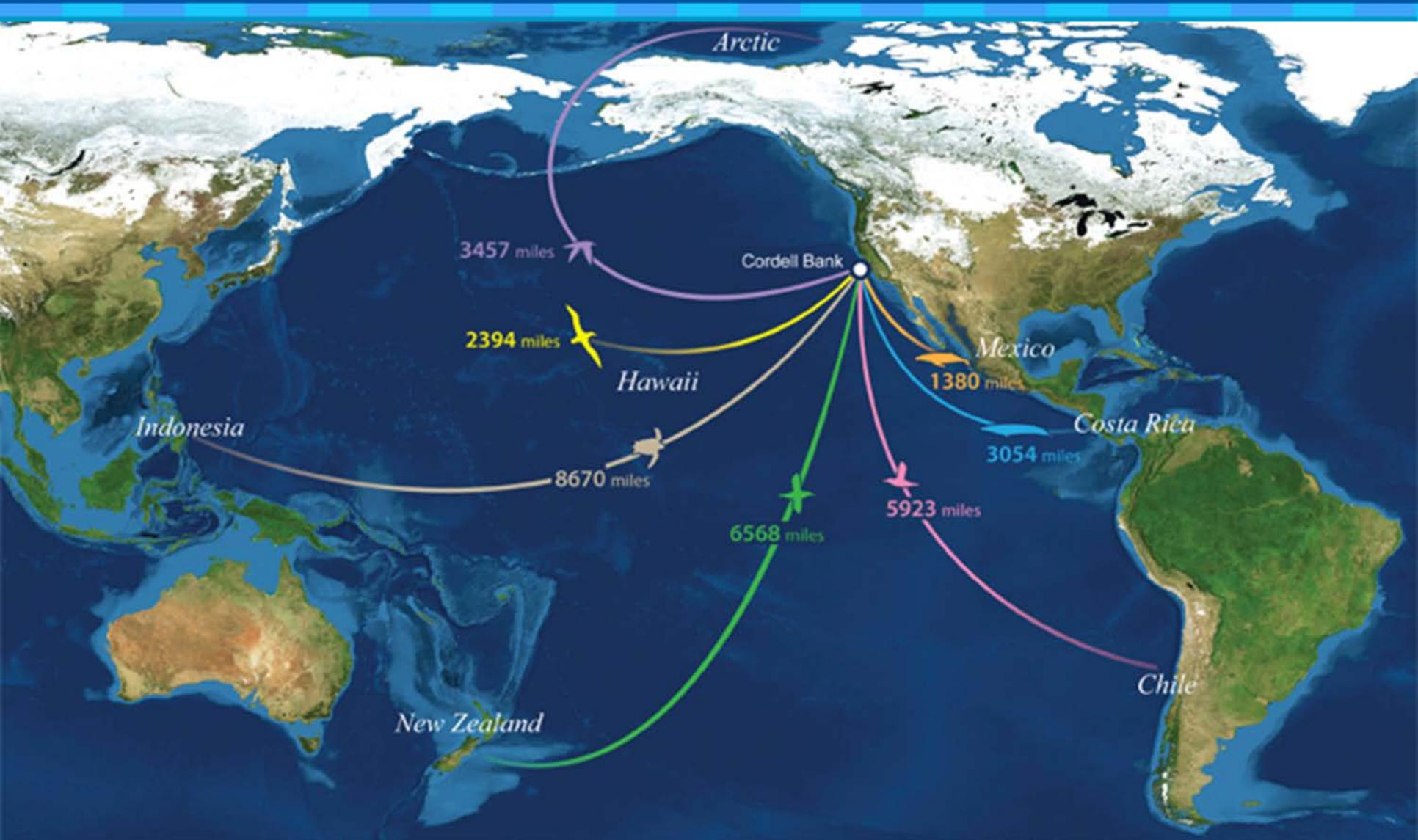


NMFS: under the **Marine Mammal Protection Act** and the **Endangered Species Act**, NMFS works to recover protected marine species while allowing economic and recreational opportunities.

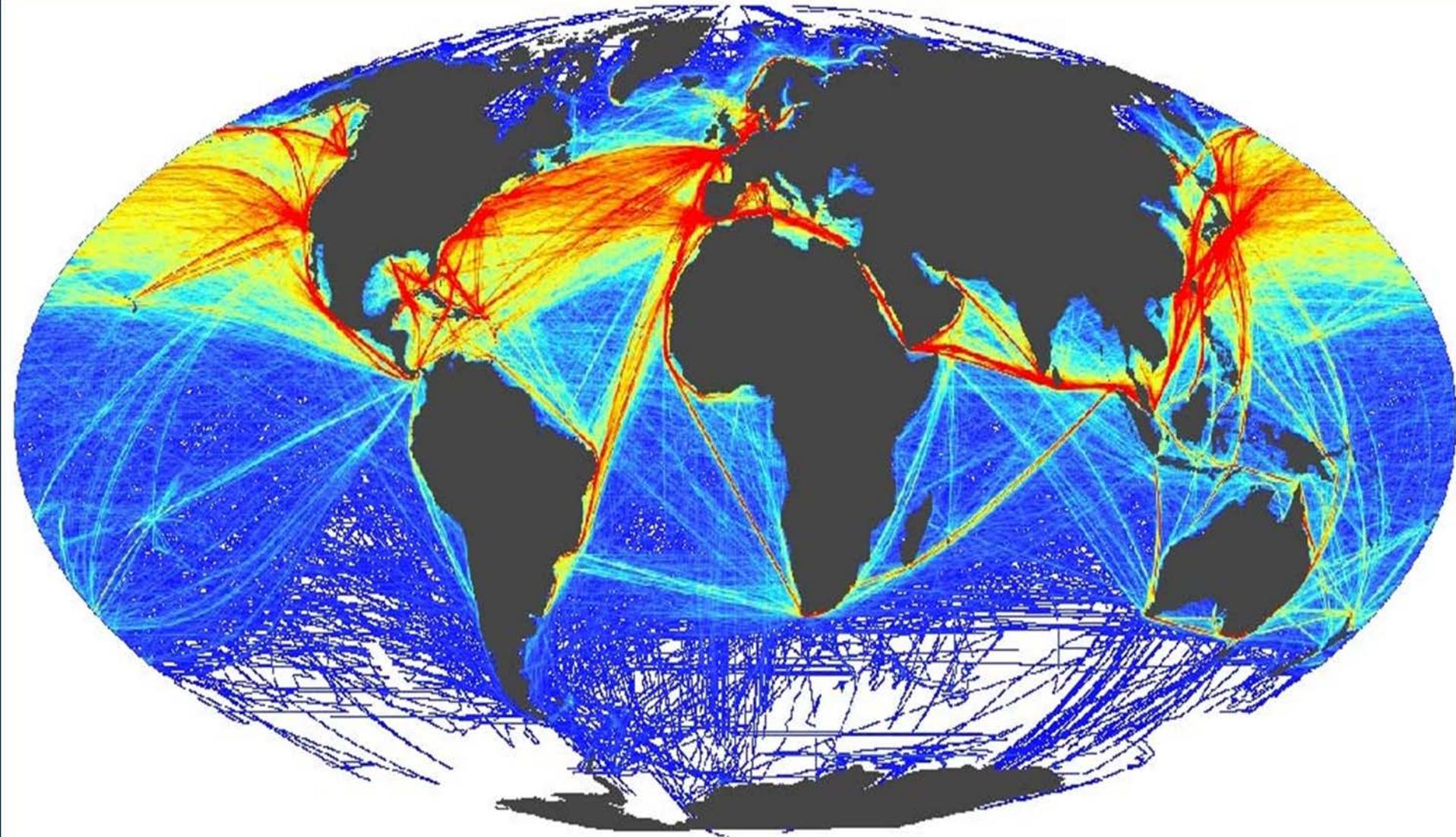
ONMS: serves as the trustee for a network of 14 marine protected areas, which are managed under the **National Marine Sanctuaries Act** to protect and conserve their resources and to allow uses that are compatible with resource protection.



Animals travel great distances to feed off of California



Automatic Identification System data for ocean going vessels

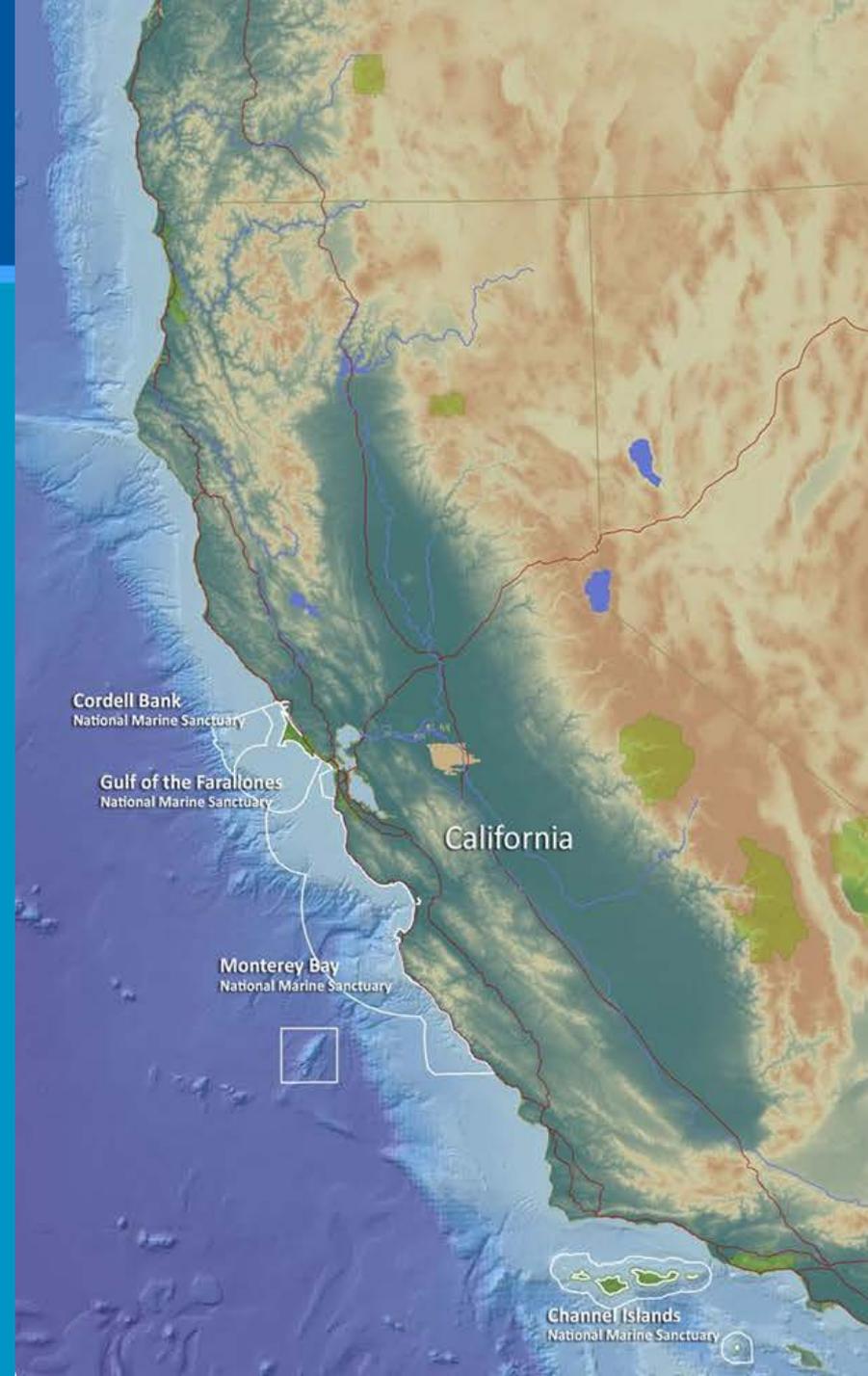


The co-occurrence of ships and whales sometimes results in ship strikes



Heightened concern

- **2000 – 2011:**
average of 3 large whales/year found dead,
injuries consistent with ship strike
- **2007:**
4 blue whales found dead in and around CINMS
- **2010:**
2 blues (1 aborted fetus), 1 humpback, 2 fin
whales found dead in and around GFNMS/
CBNMS



High stakeholder interest:

Two SAC working groups at CINMS and GFNMS/CBNMS



USCG: Port Access Route Study (PARS)



- USCG initiated PARS in 2009
- Goal of study was to help reduce the risk of marine casualties and increase efficiency of vessel traffic in the study area
- Study area: entrance to Long Beach/Los Angeles harbor – including the Santa Barbara Channel (CINMS)
entrance to San Francisco/Oakland harbor
(GFNMS/CBNMS/MBNMS)
- Obama's Ocean Policy Task Force: coastal marine spatial planning
- Lessons learned from PARS and North Atlantic right whales on east coast

Opportunity!



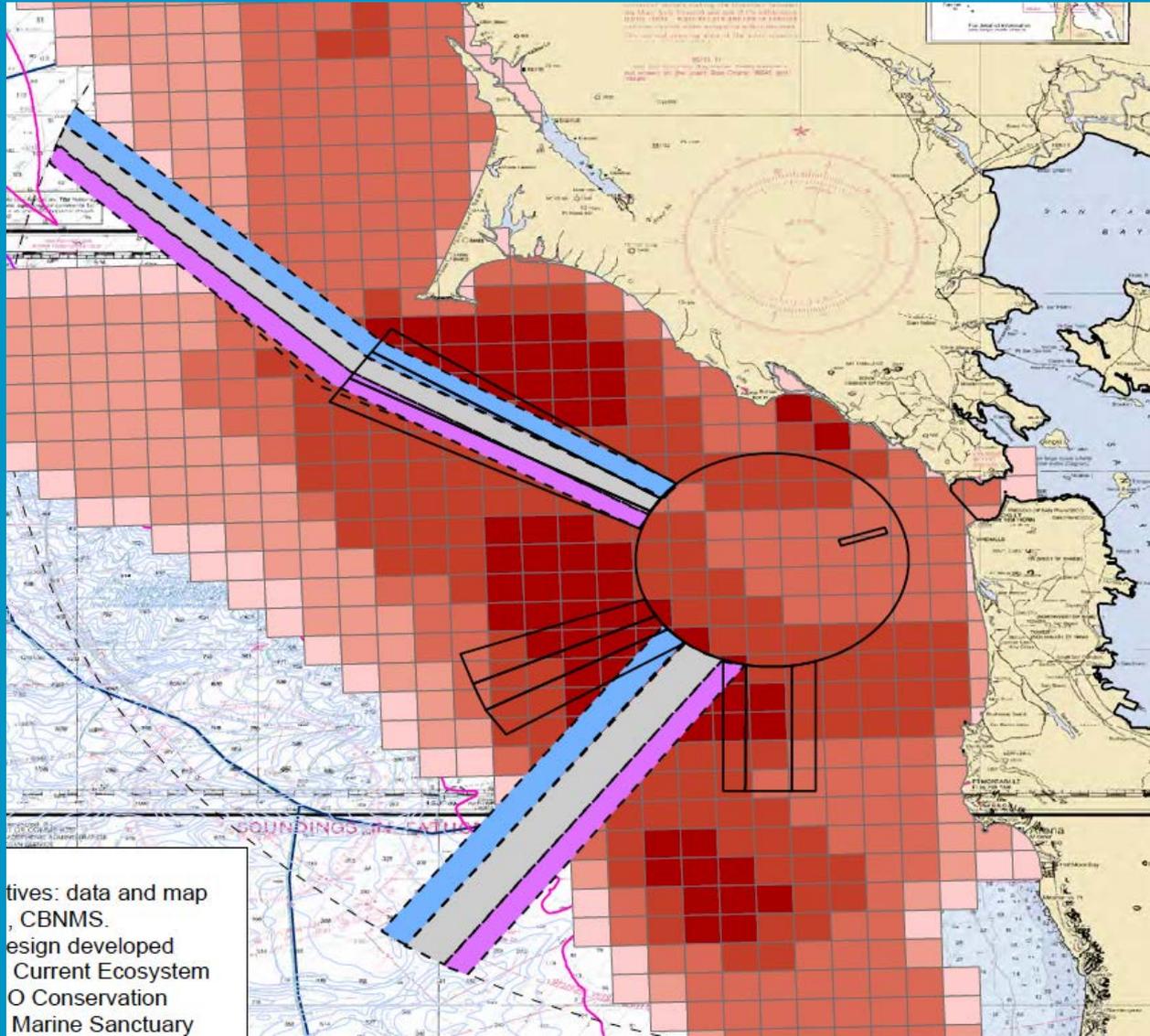
The intersection of PARS and the issues of concern in sanctuaries: case study SF



To assist the USCG in PARS decision-making, Gulf of the Farallones and Cordell Bank sanctuaries developed a decision support tool that communicated complex ecosystem traffic interactions:

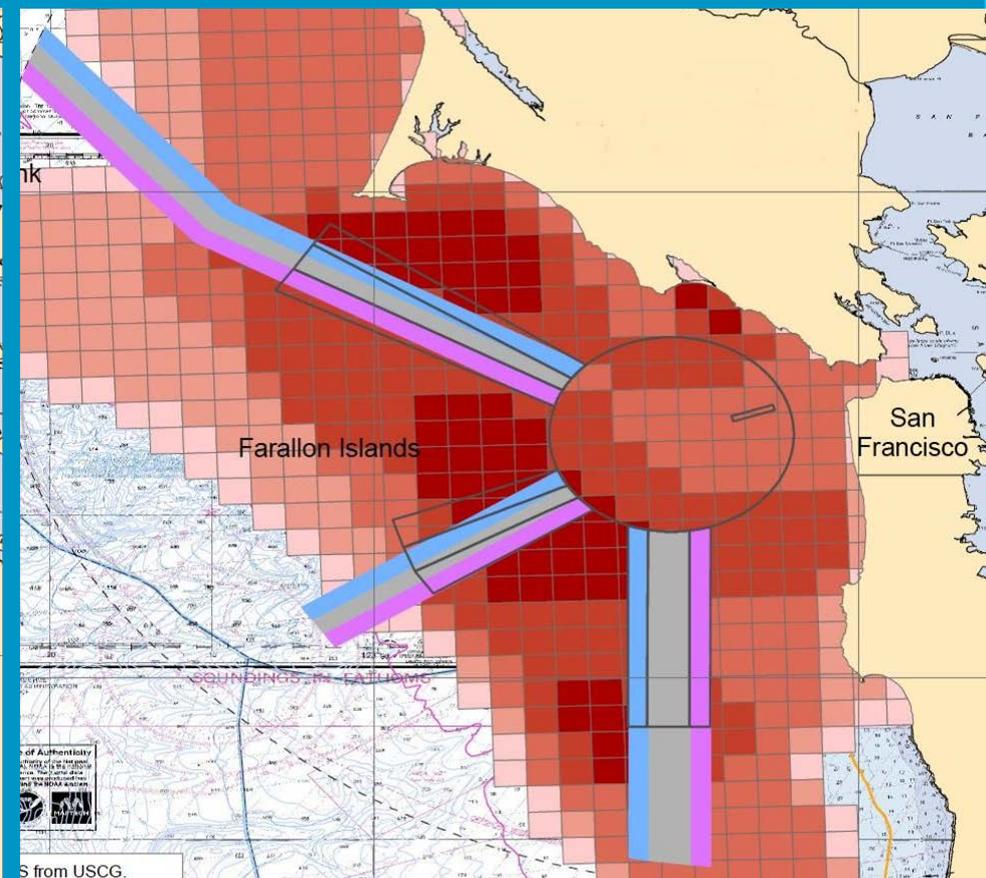
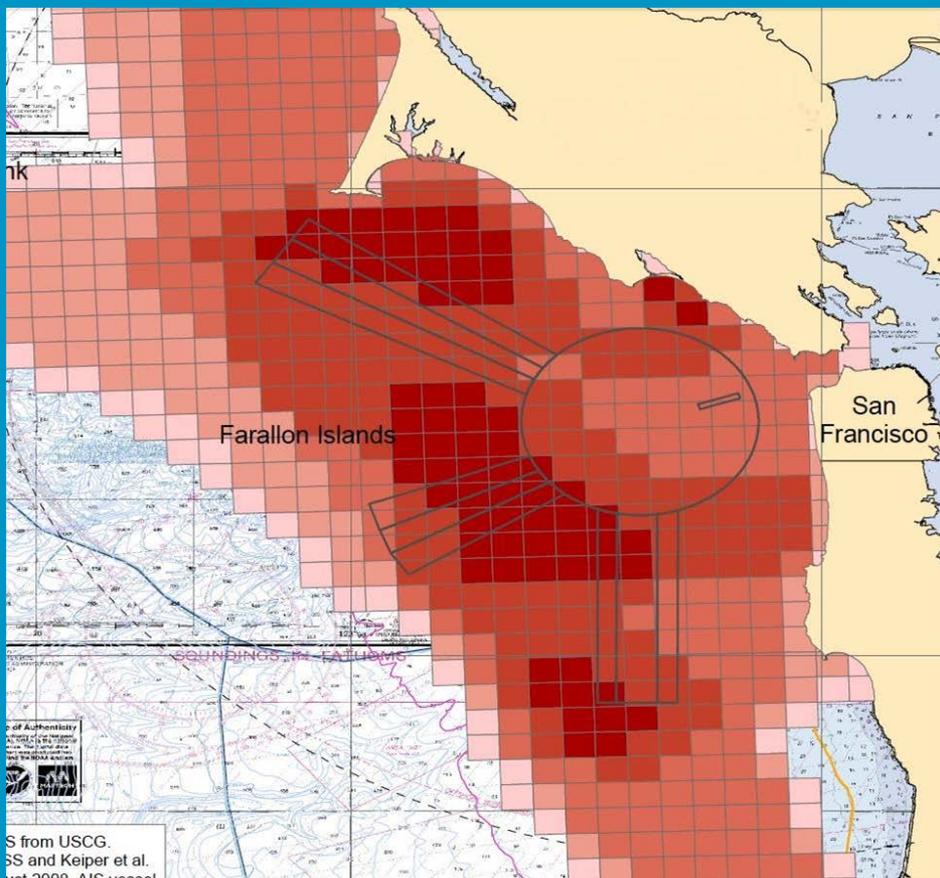
- Helping reduce the risk of marine casualties
 - Working with the maritime and shipping industry to address their concerns
 - Providing fishermen ground-truthed data and working with fishermen to provide feedback to USCG
- Considering threats to the marine environment
 - Working with key scientists to recommend extending and narrowing lanes at the shelf break, and avoiding Cordell Bank
 - Working with the USCG to move lanes away from GFNMS cargo vessel prohibition areas that are designed to protect breeding, roosting and foraging marine mammals and birds.

The Decision Support Tool: developing options



atives: data and map
, CBNMS.
esign developed
Current Ecosystem
O Conservation
Marine Sanctuary

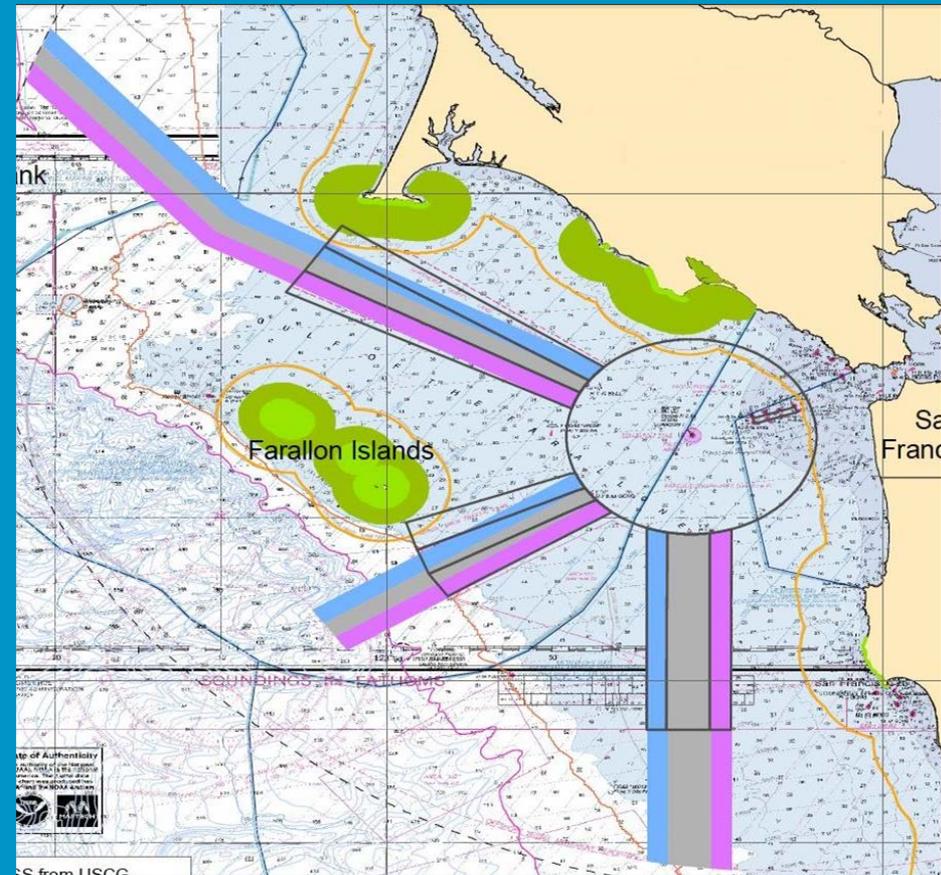
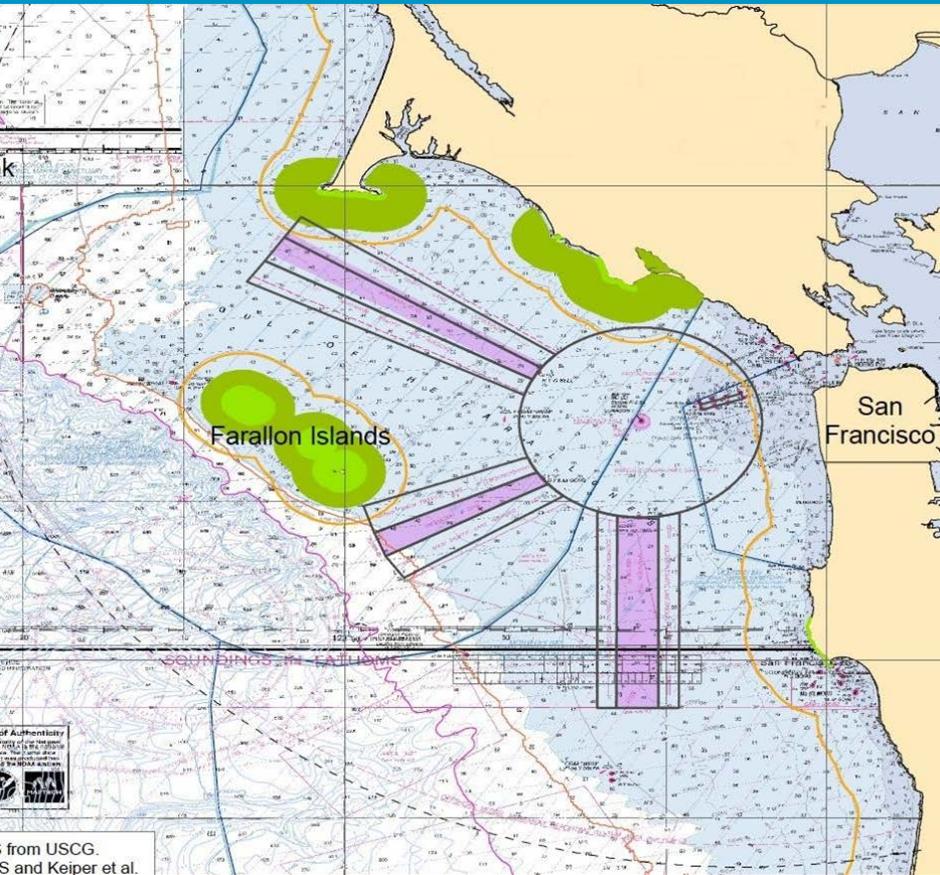
The Decision Support Tool: working with fishermen



The Decision Support Tool: working with fishermen, and avoiding environmentally sensitive areas



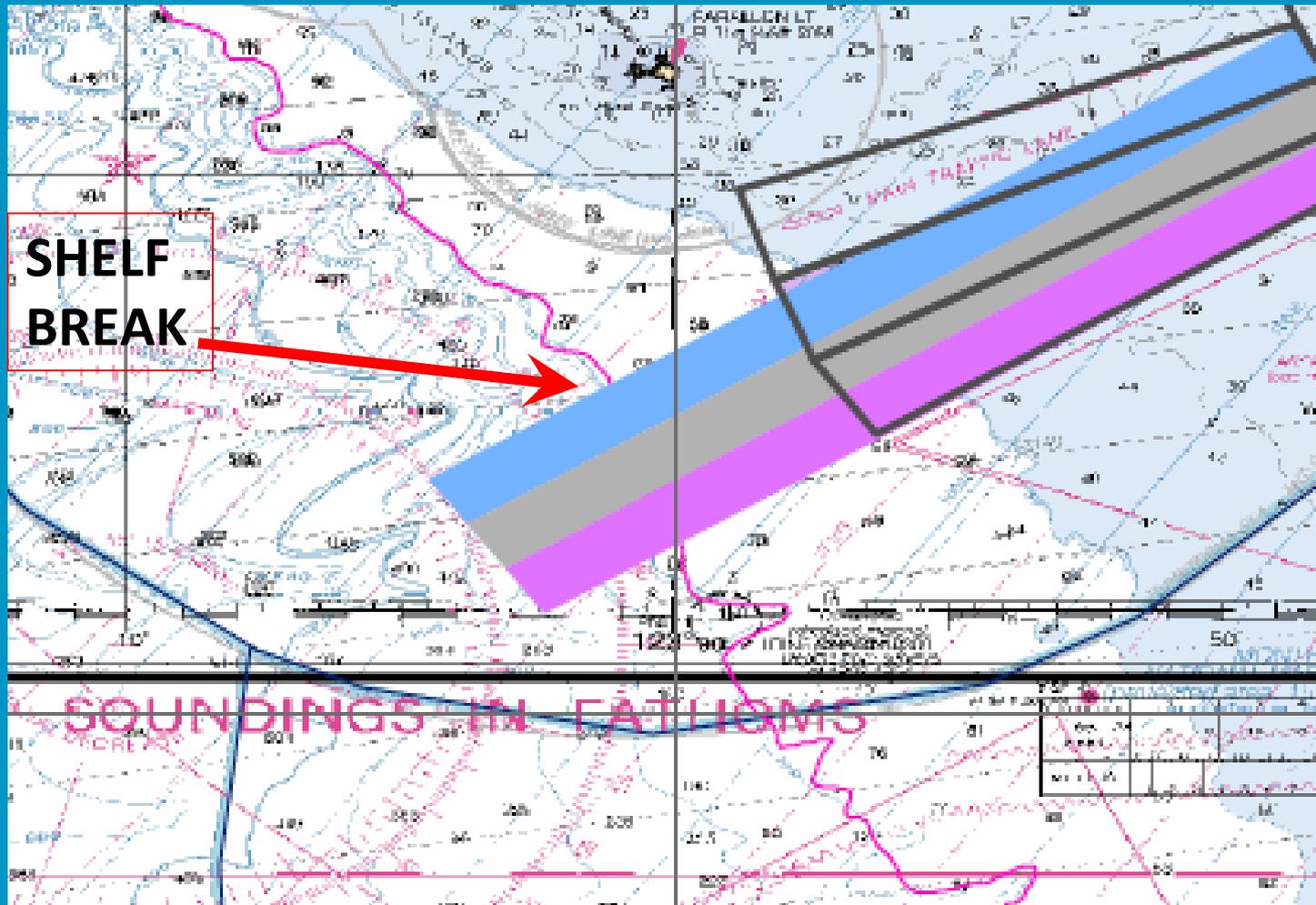
The Decision Support Tool: avoiding sensitive areas



from USCG.
S and Keiper et al.

SS from USCG

The Decision Support Tool: addressing the science



Reduce conflict between vessels and preferred whale habitat

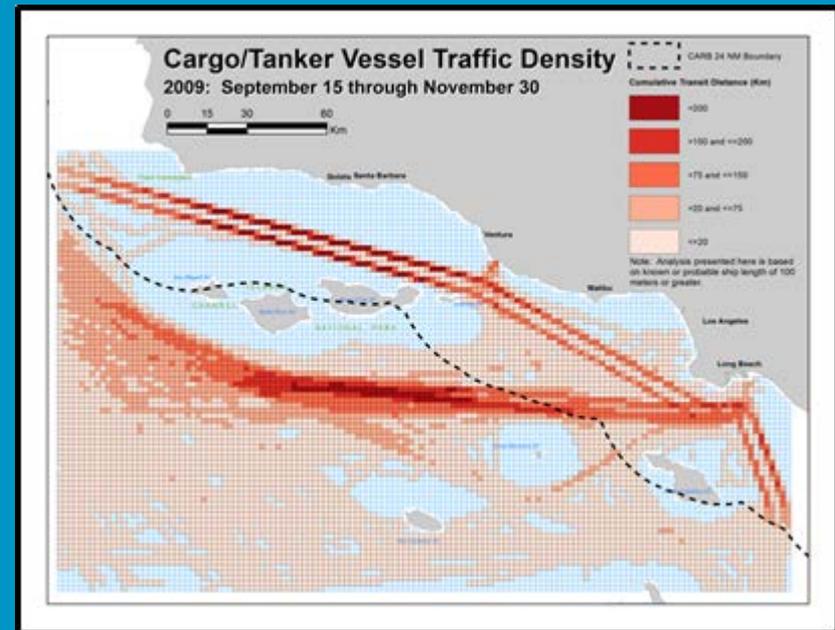
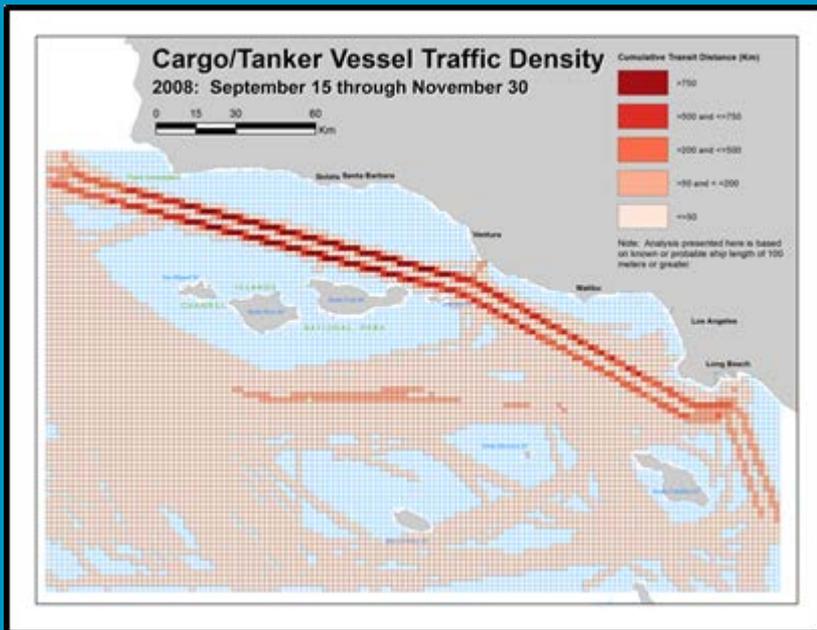
Shifting gears to the south



Management options

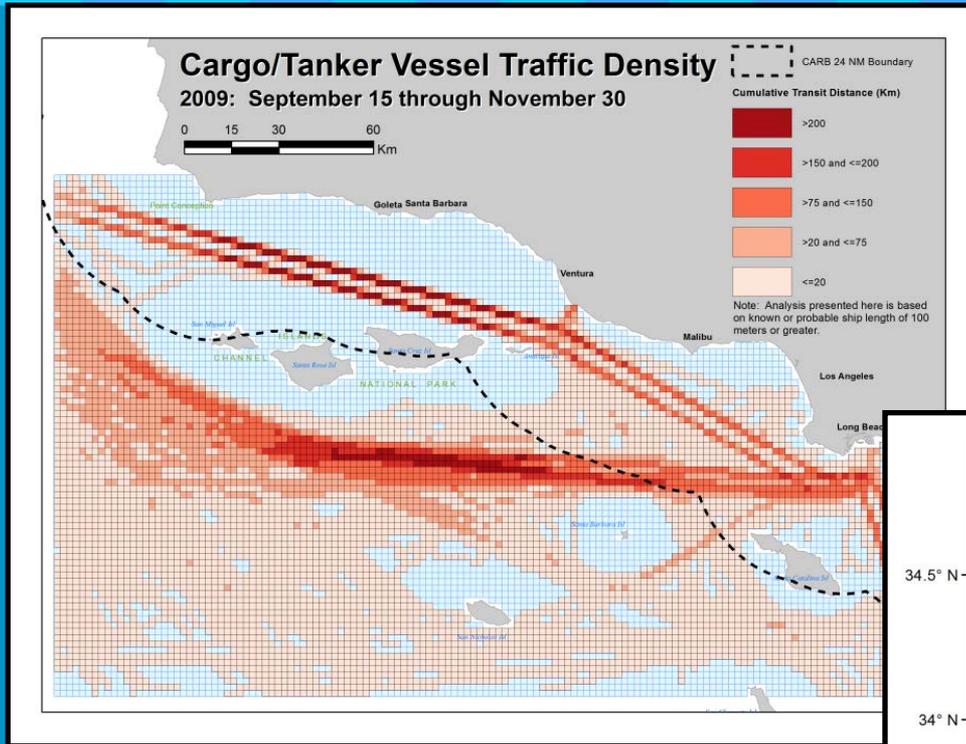


U.S. West Coast Southern California Bight

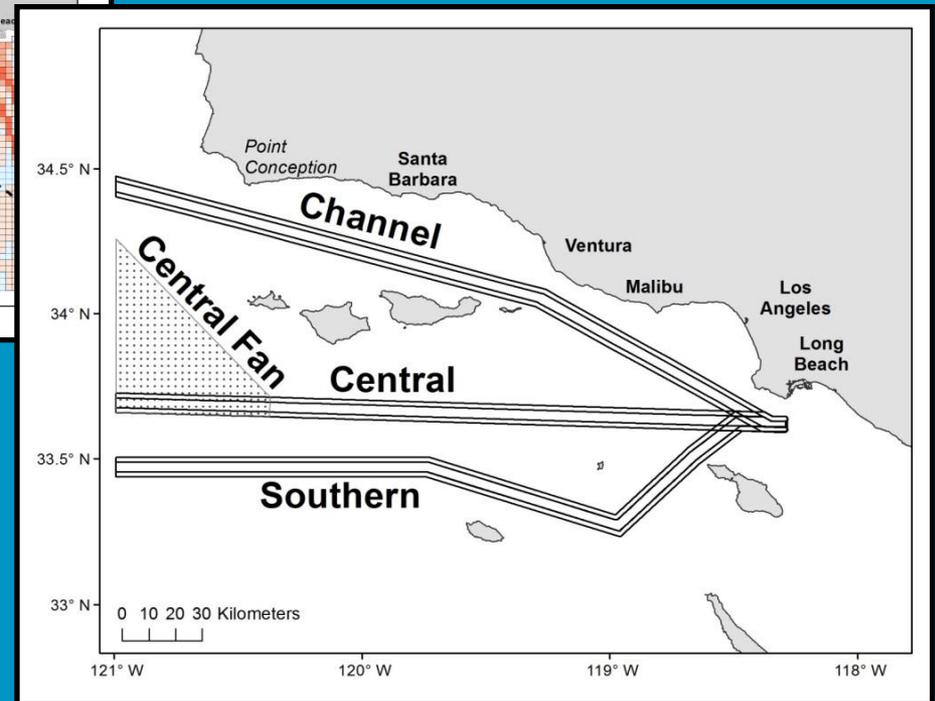


Megan McKenna. 2011. Blue whale response to underwater noise from commercial ships. Ph.D. Dissertation. Biological Oceanography. University of California, San Diego.

Management options



Identify alternative shipping lanes



Assessing risk



Assume risk is proportional to the number of whales in each lane



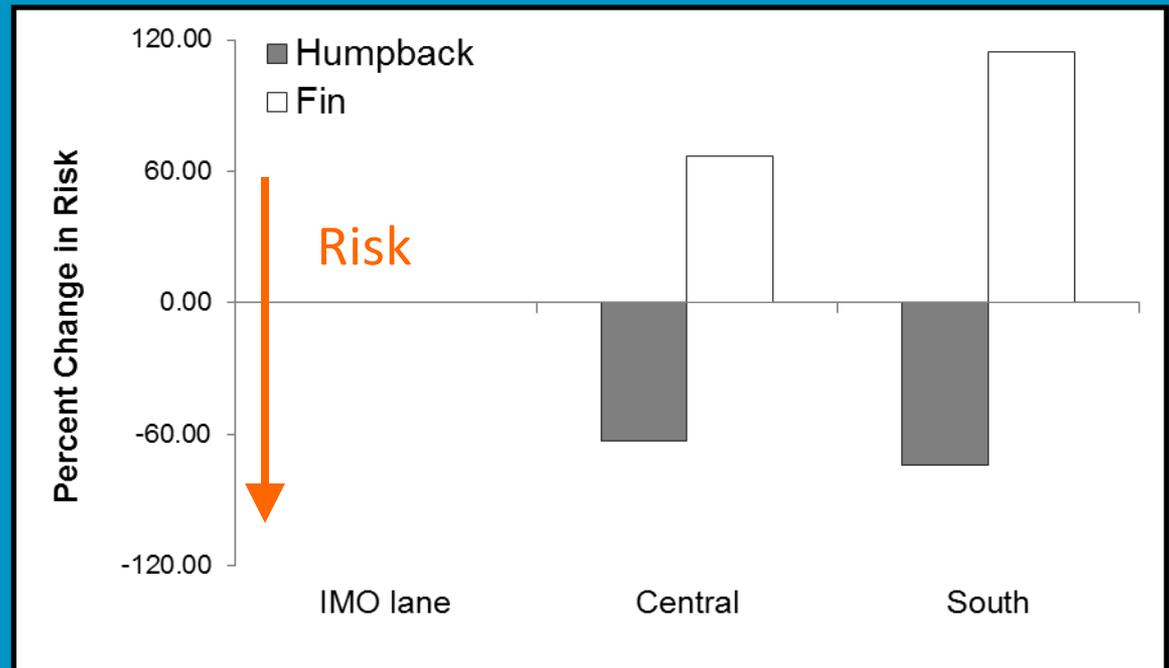
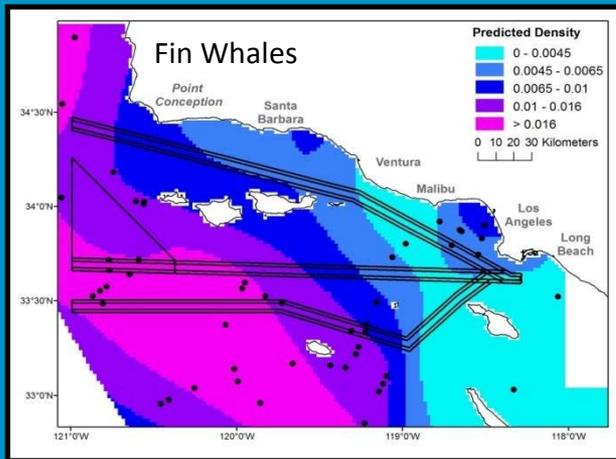
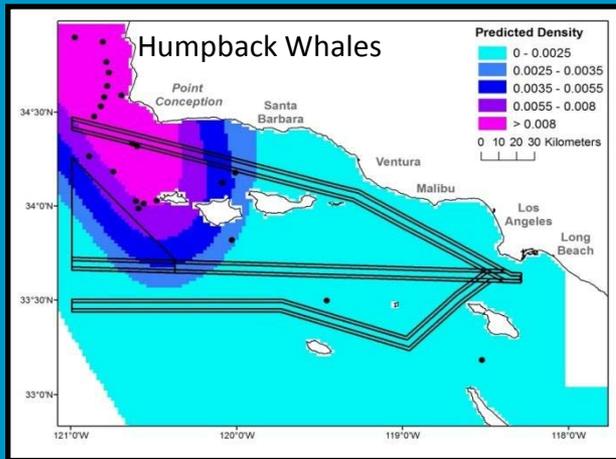
Risk is highest in areas where the co-occurrence of whales and ships is high

Jessica V. Redfern, Megan F. McKenna, Thomas J. Moore, John Calambokidis, Monica L. DeAngelis, Elizabeth A. Becker, Jay Barlow, Karin A. Forney, Paul C. Fiedler, Susan J. Chivers. 2013. Assessing the risk of ships striking large whales in marine spatial planning. *Conservation Biology* 27:292-302.

Assessing risk



Which lane has the lowest risk compared to the IMO adopted lane?

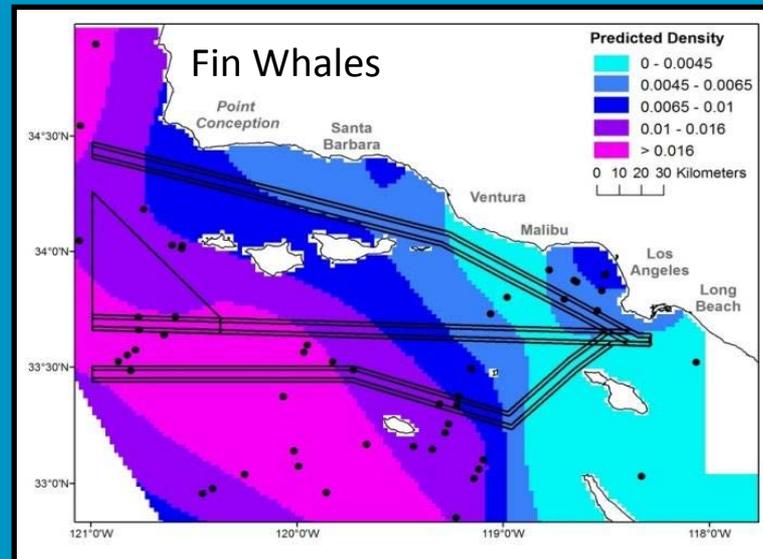


Assessing risk



Risk for fin whales increased when traffic shifted to the southern lanes in 2009

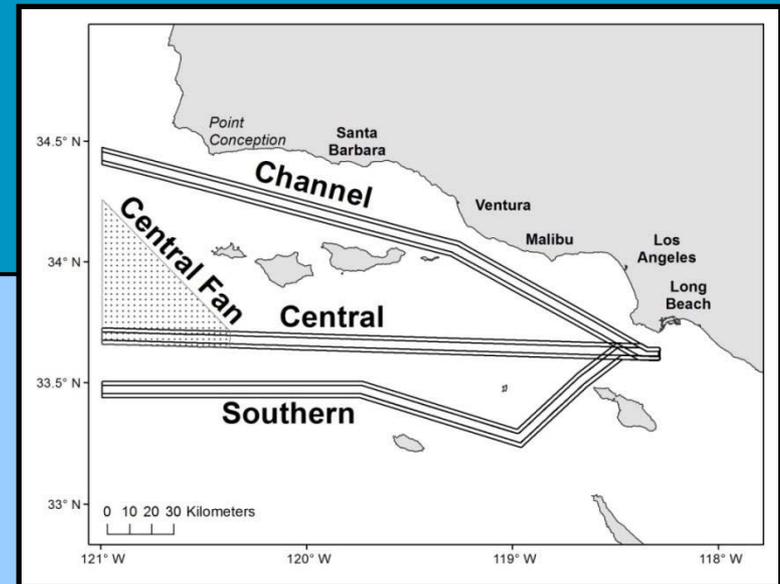
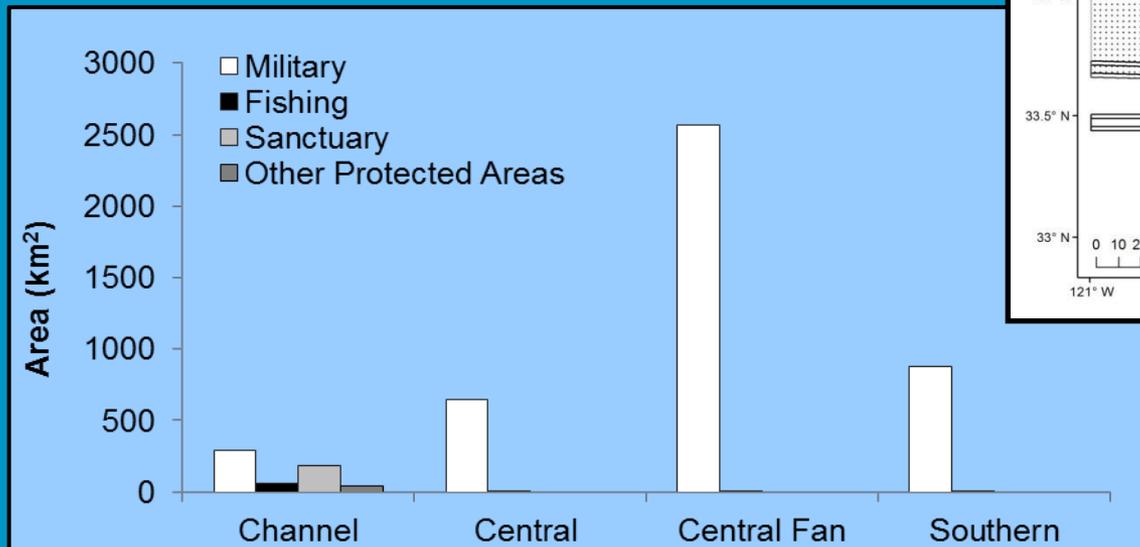
In 20 years of California stranding records, 2009 had the second highest number of fin whale ship strikes



Assessing overlap



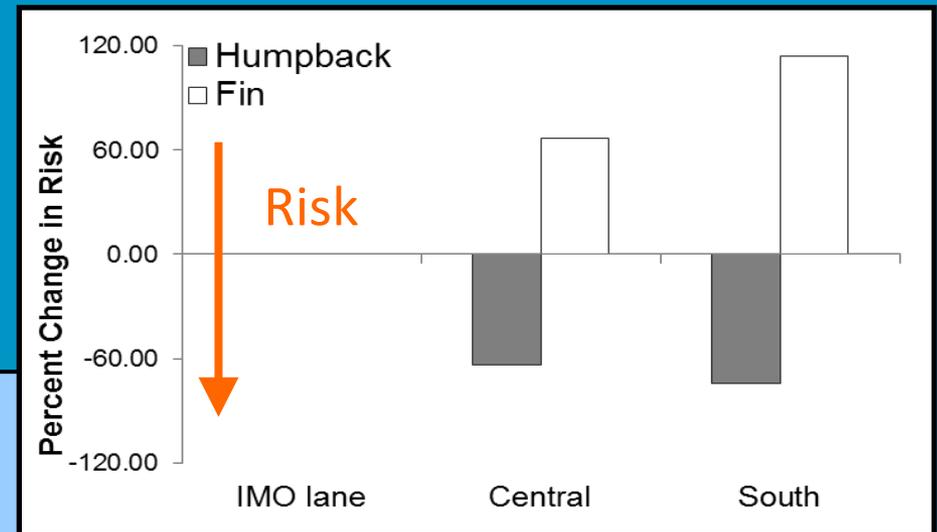
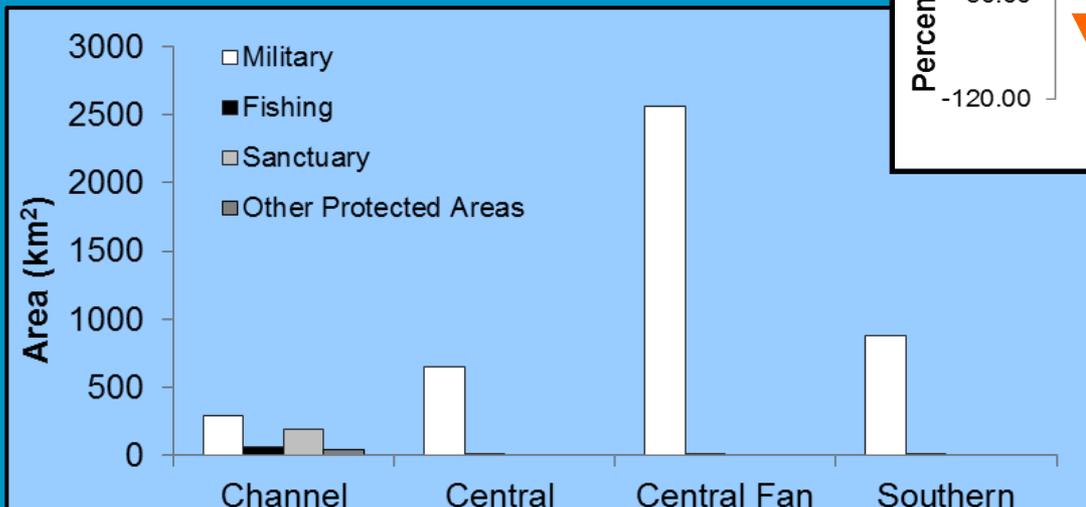
Lane location and configuration determines the overlap between shipping and other users



Conclusion



Quantifying risk and overlap allows balancing of user and environmental needs

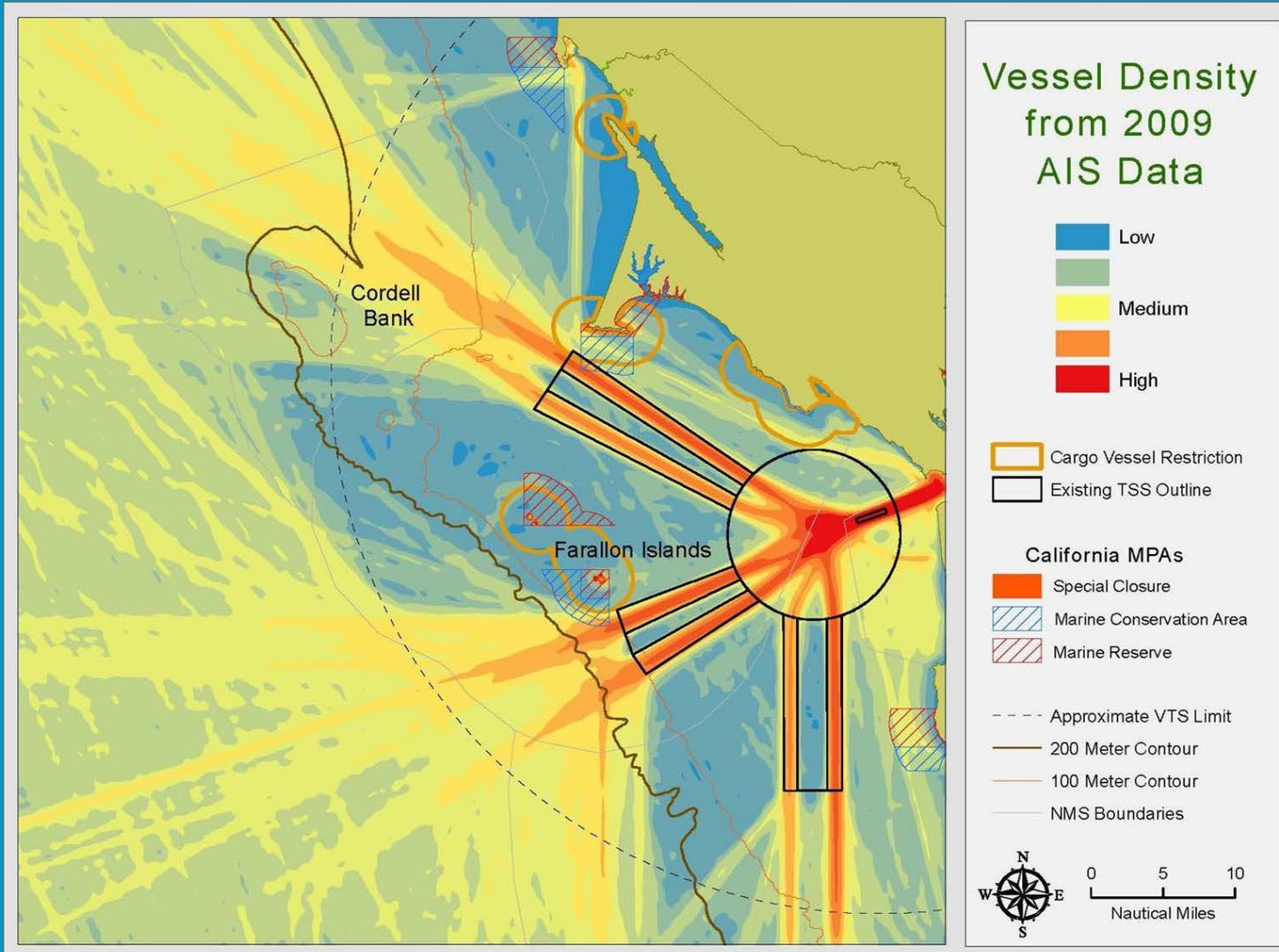




International Maritime Organization

- A technical agency of the United Nations
- Ships' routing measures are proposed to the SubCommittee for Safety of Navigation for review by all Member Governments and participating Organizations

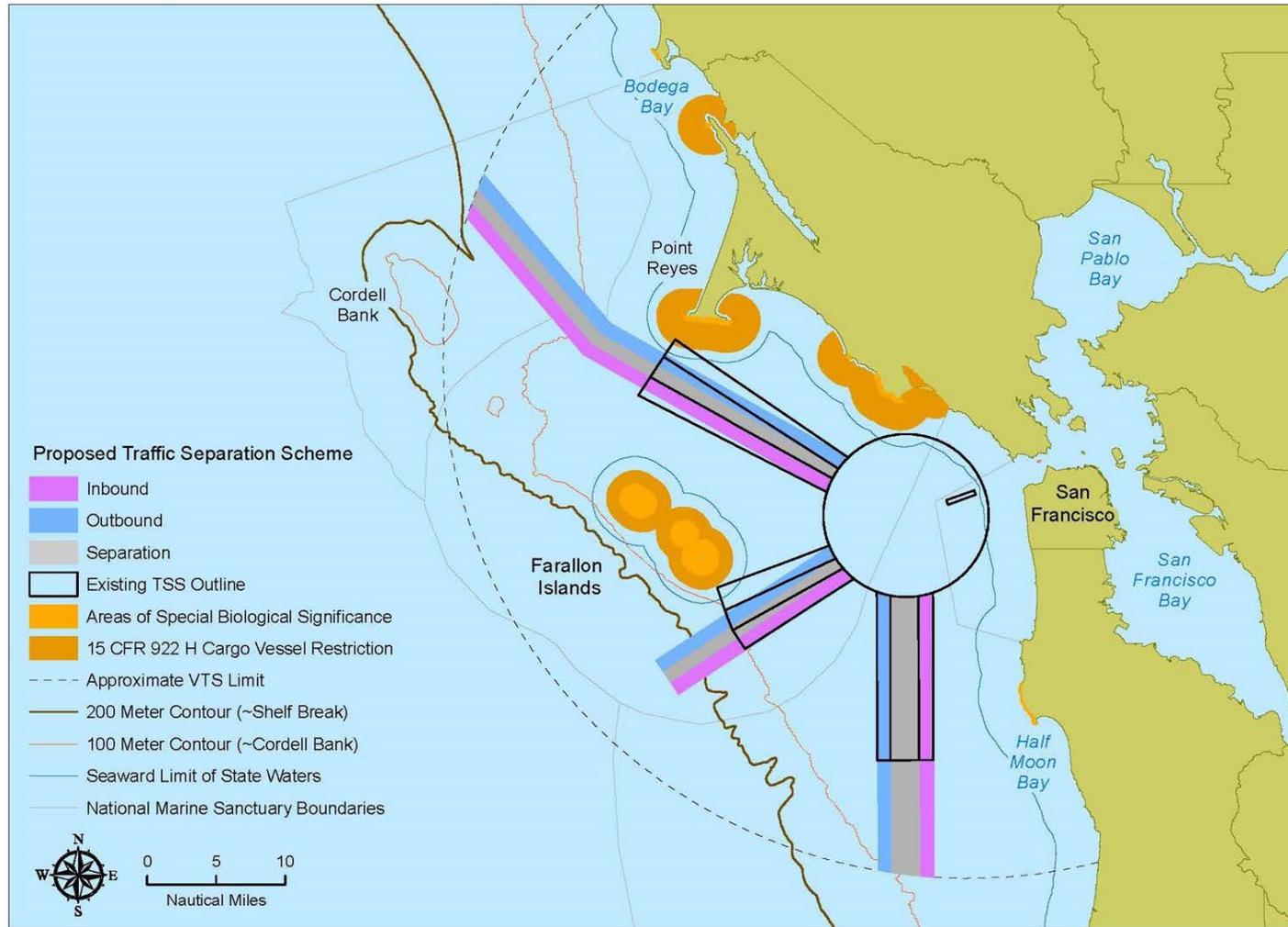
Former TSS into San Francisco (SF)



Former TSS into San Francisco (SF)



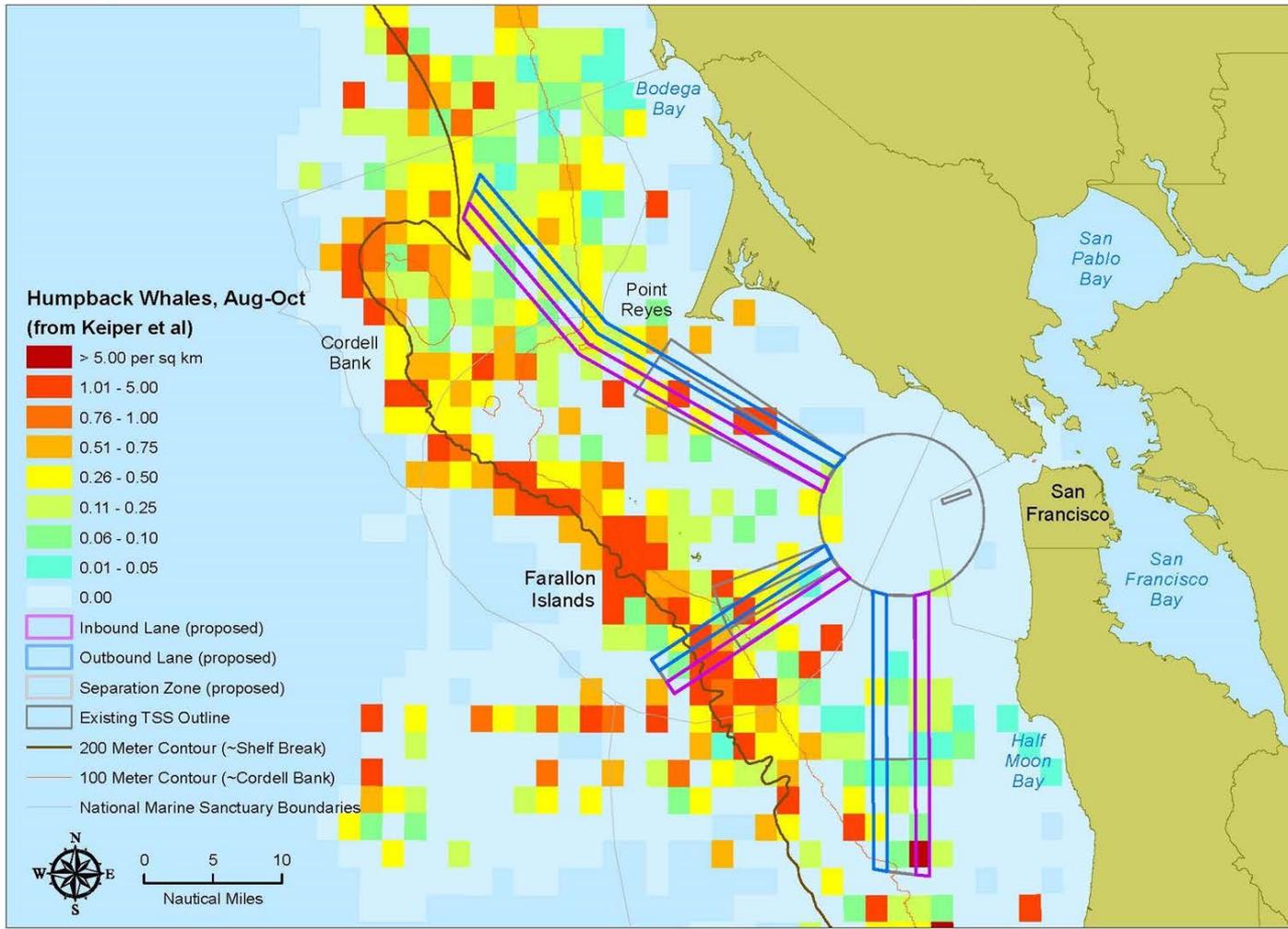
Proposed Traffic Separation Scheme Off San Francisco



Humpback Whales



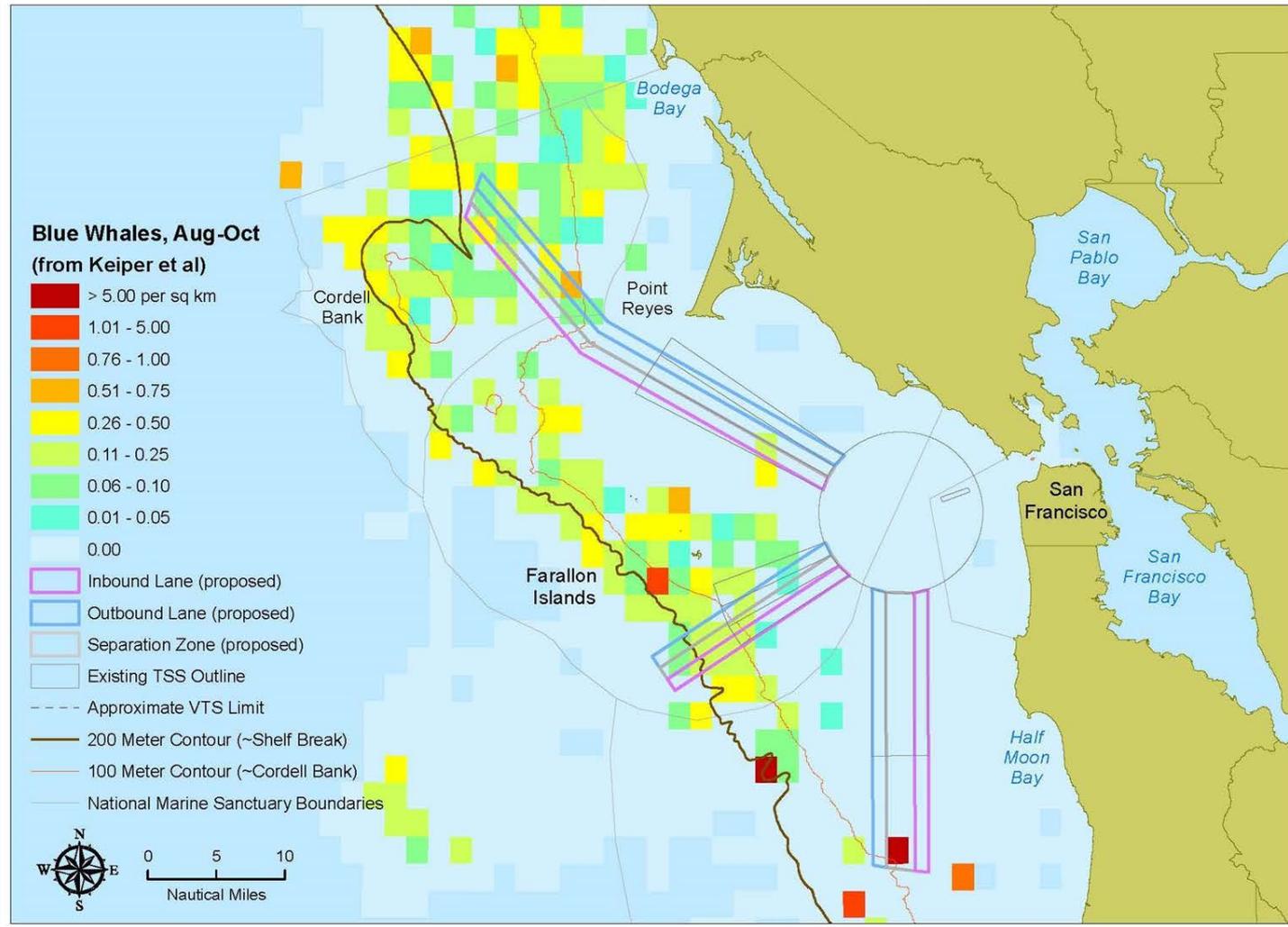
Humpback Whale Density and Proposed Traffic Separation Scheme



Blue Whales



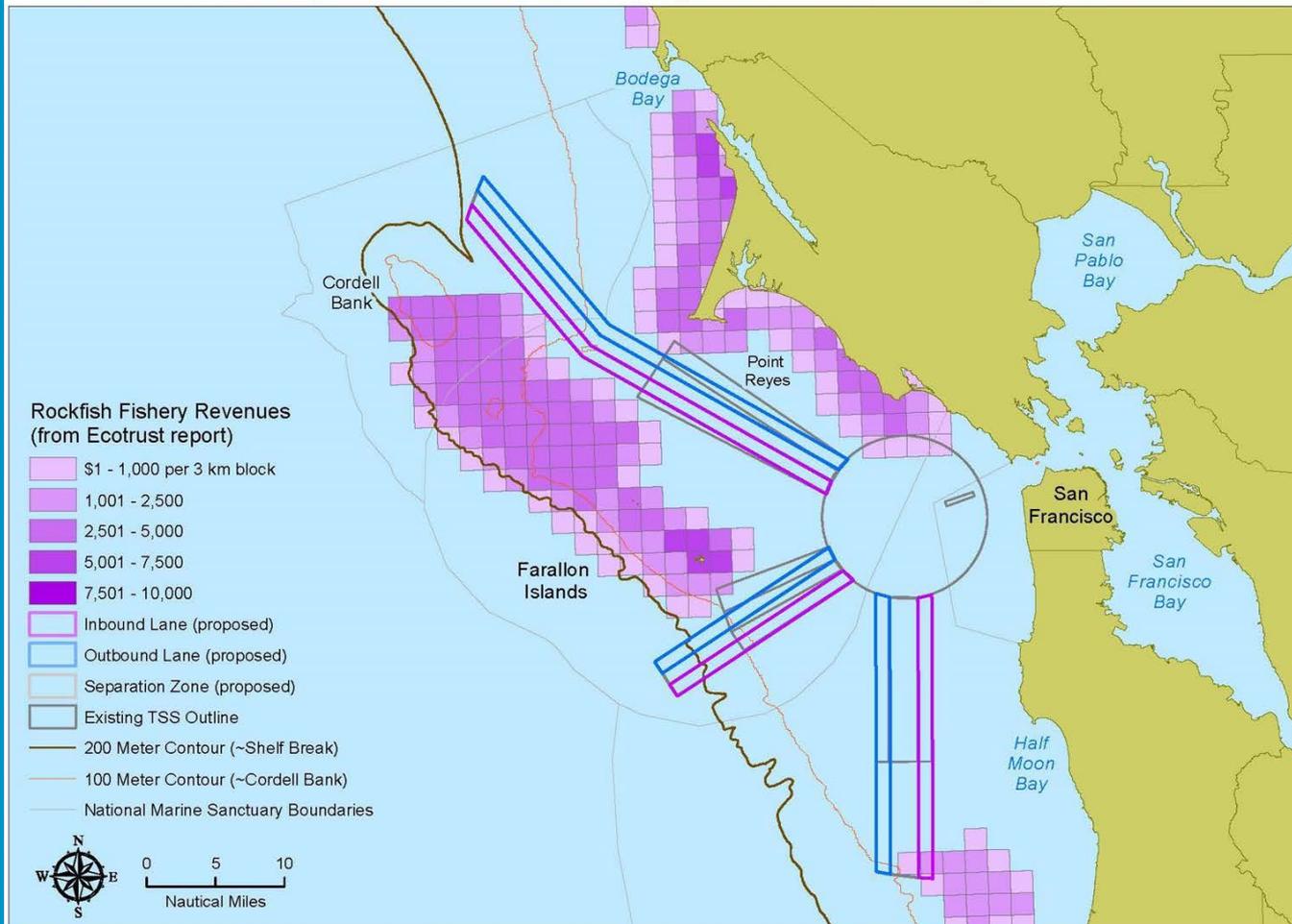
Blue Whale Density and Proposed Traffic Separation Scheme



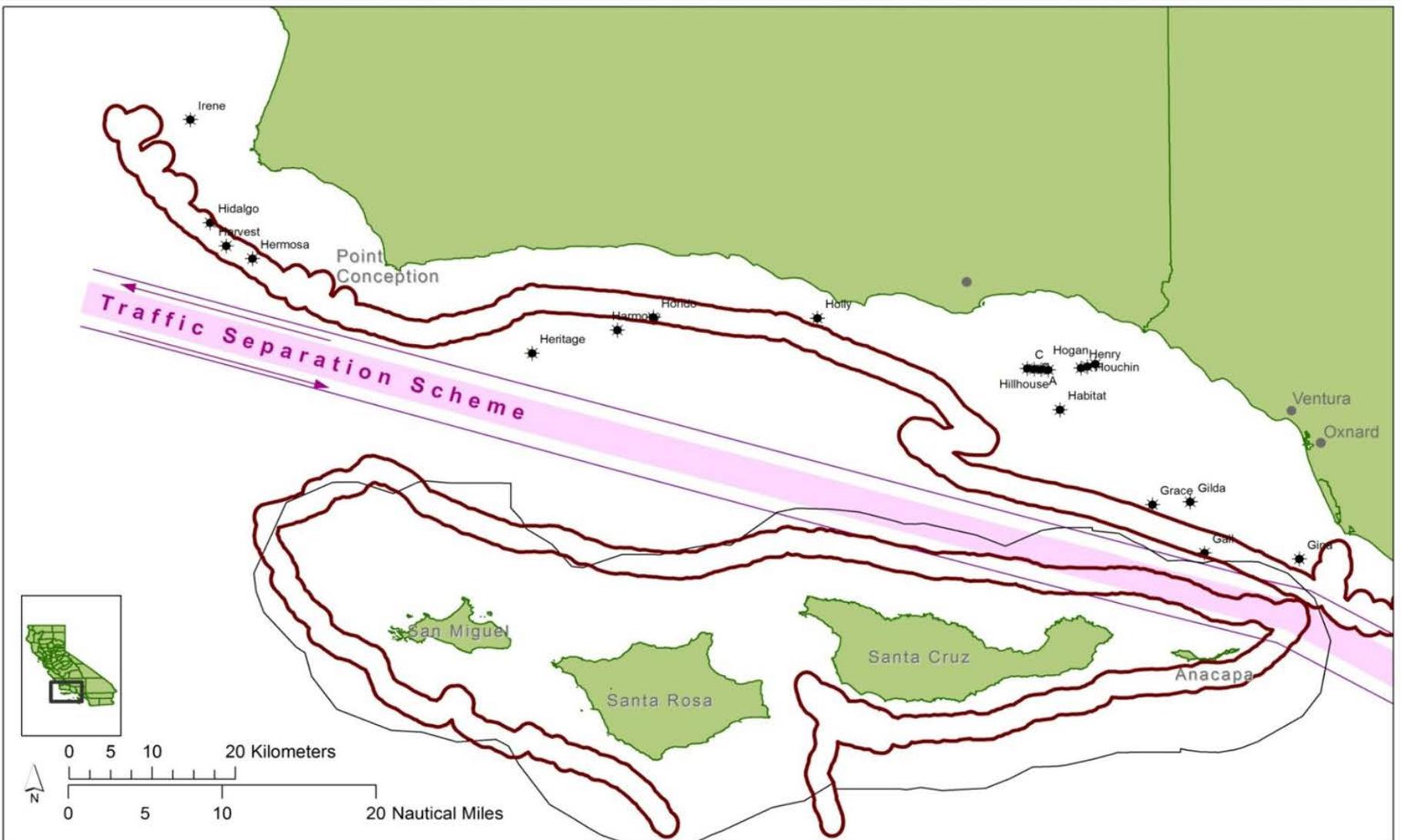
Rockfish (as an example)



Rockfish Fishery Revenues and Proposed Traffic Separation Scheme



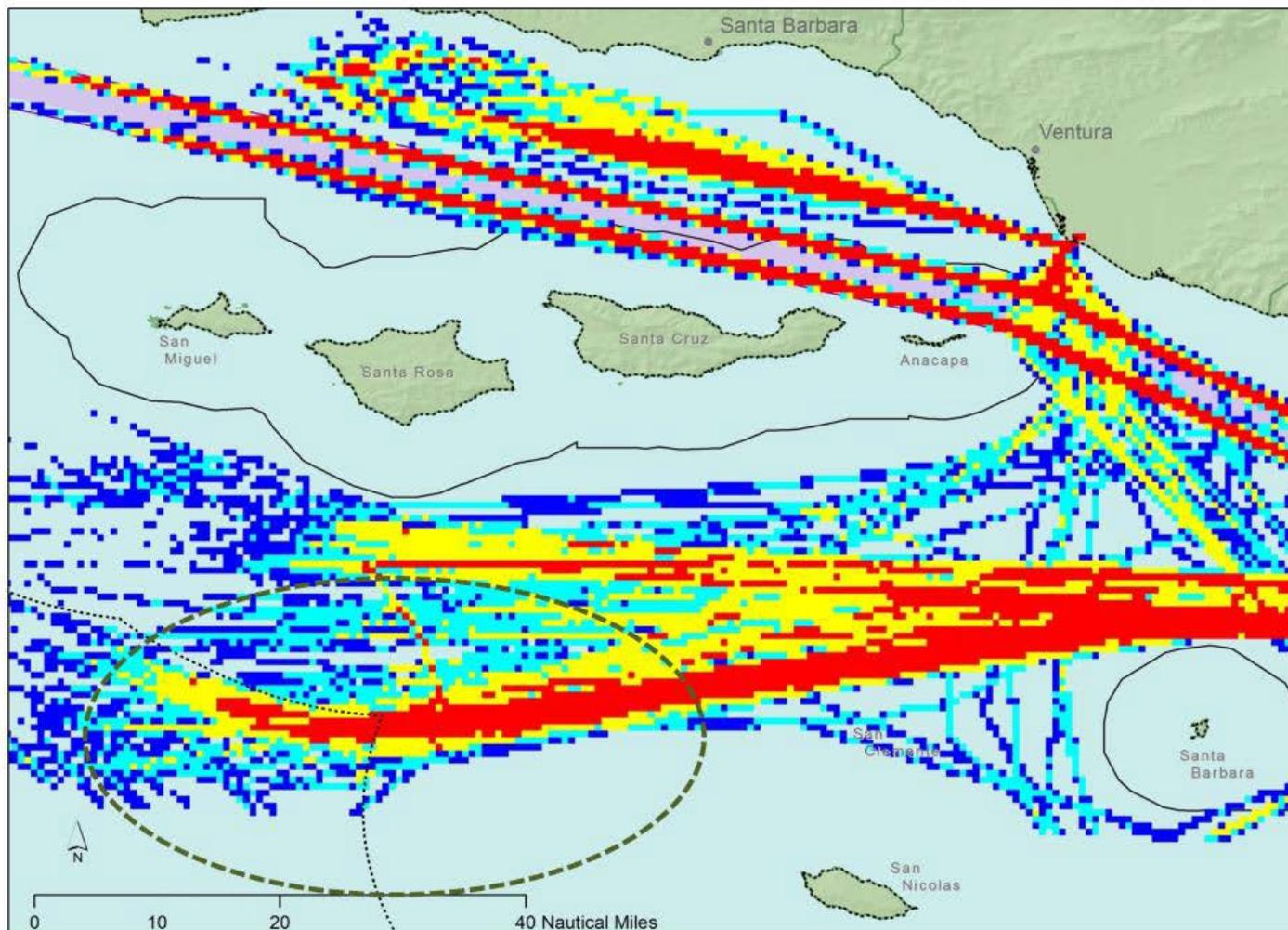
Former TSS in the SBC



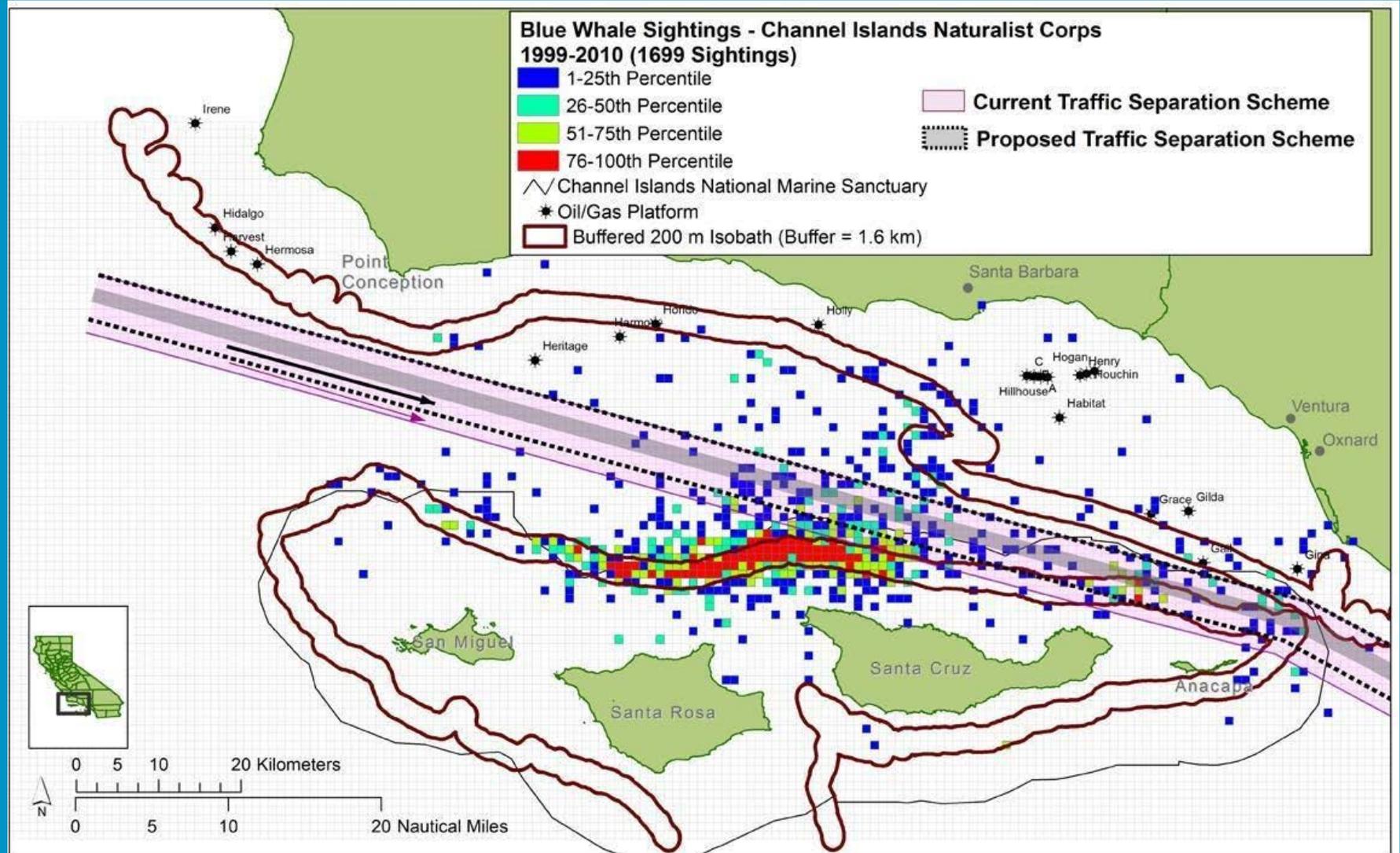
Vessel traffic around the Channel Islands



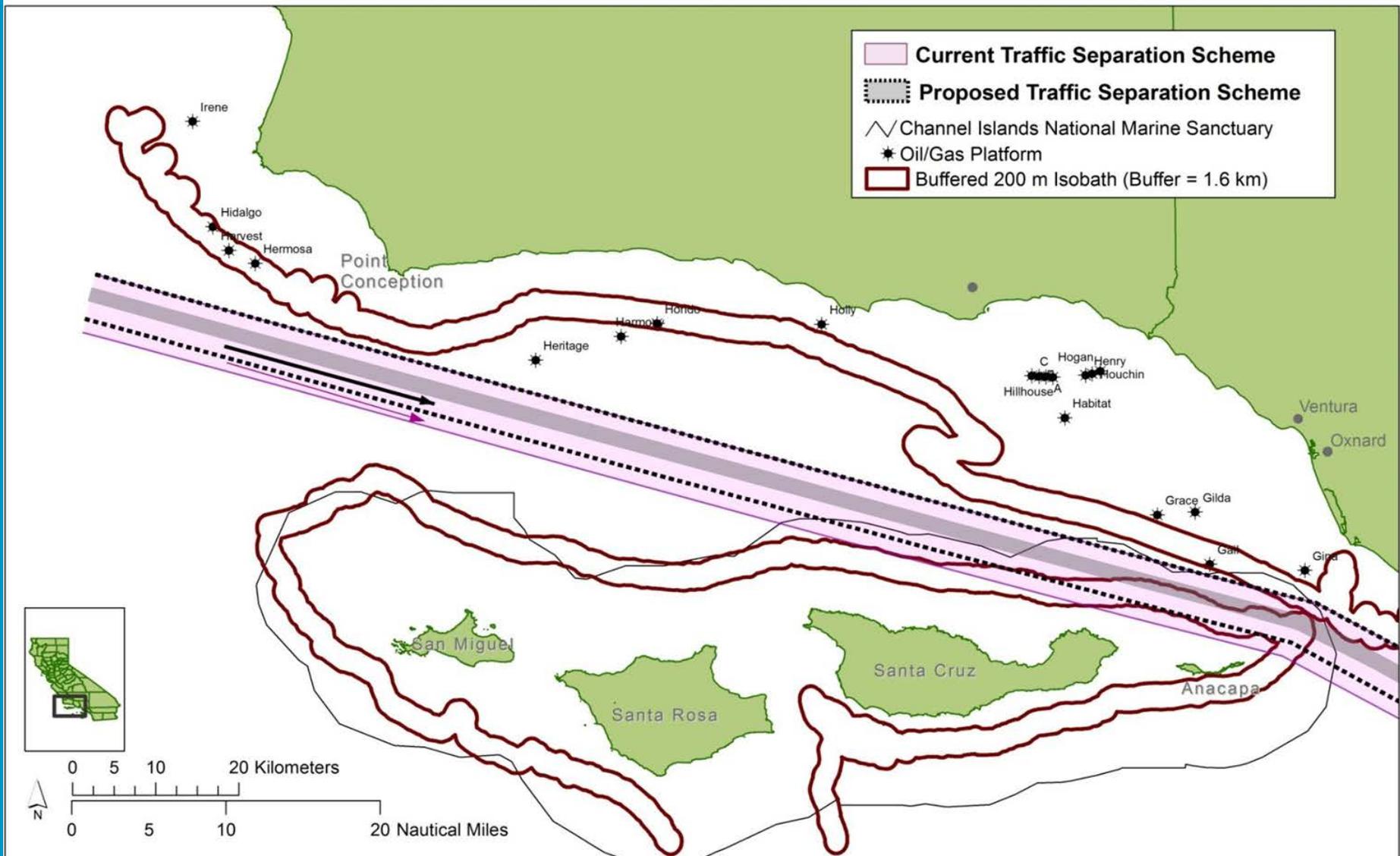
Density of Cargo Vessel Tracks: 2FEB – 10MAR 2012



Proposed TSS decreases ship strike risk



Proposed TSS



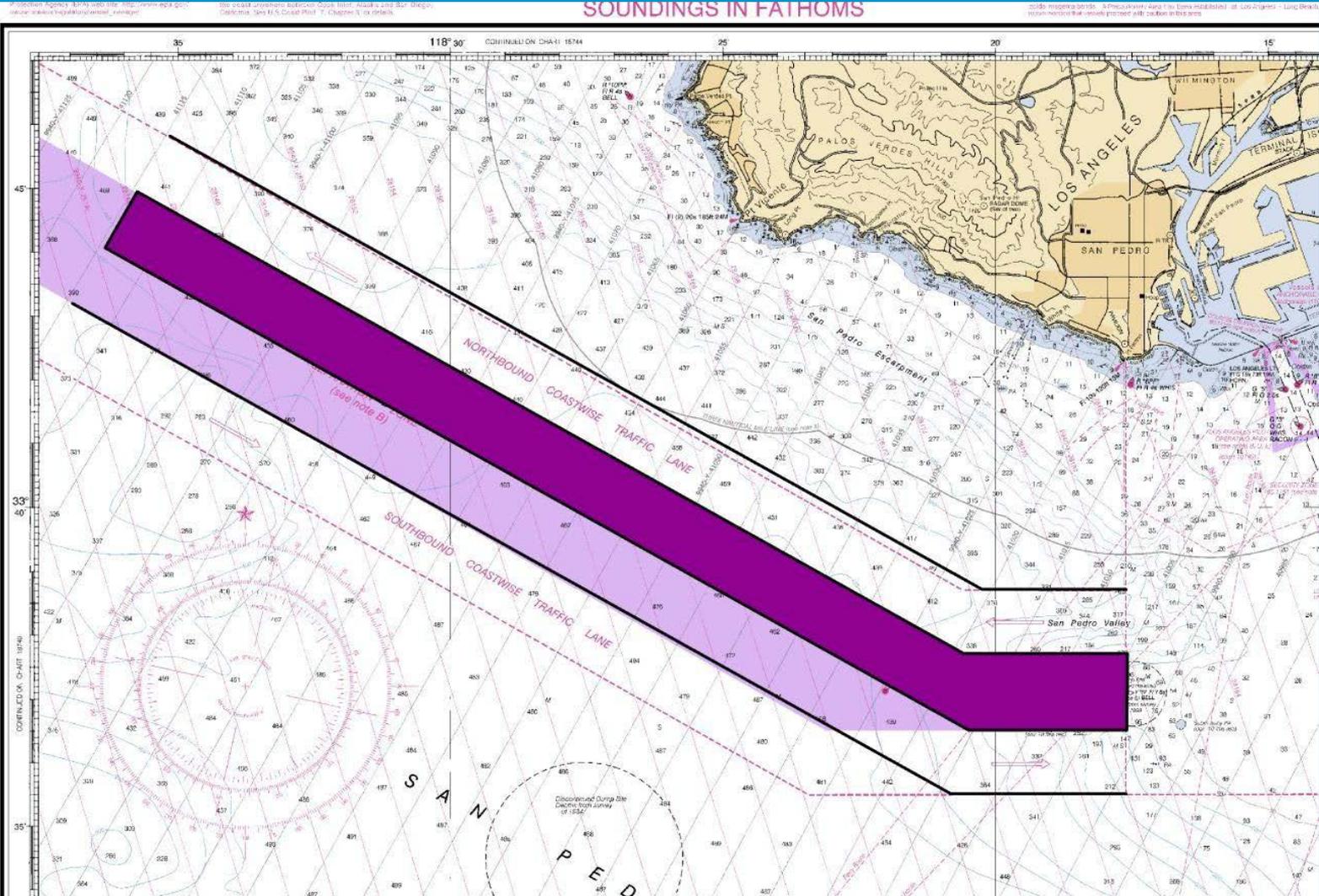
The TSS in the approach to LA/LB



SOUNDINGS IN FATHOMS

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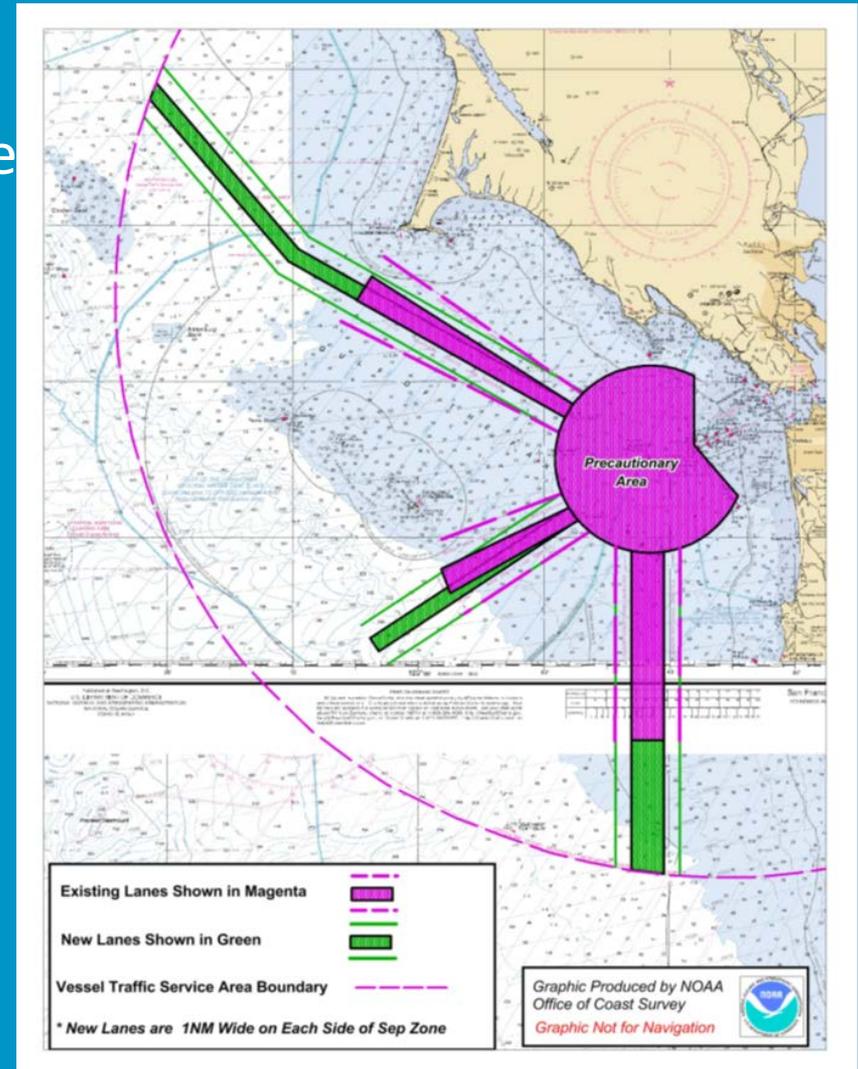
LOBAN-C OVERPRINTED



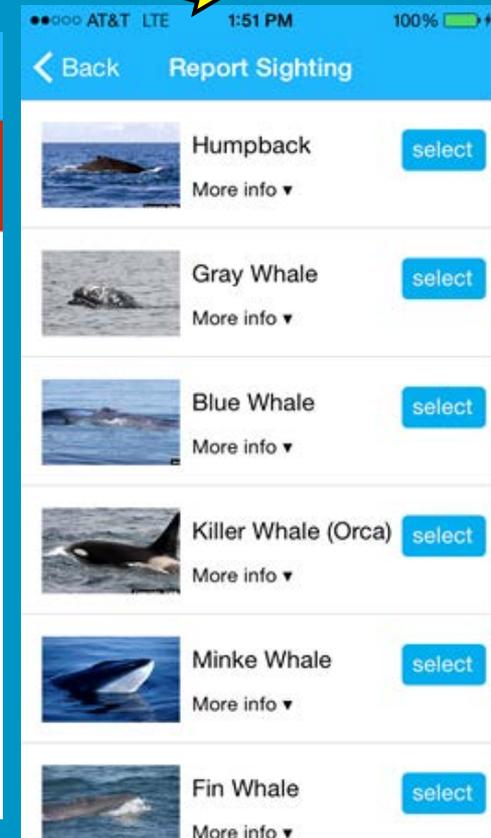
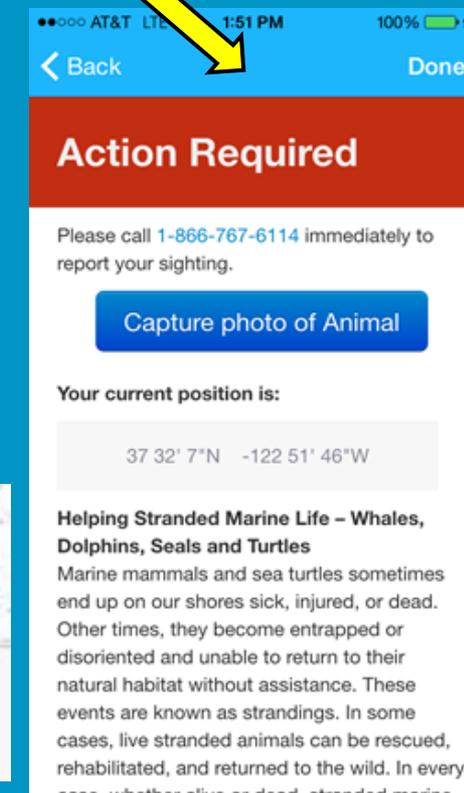
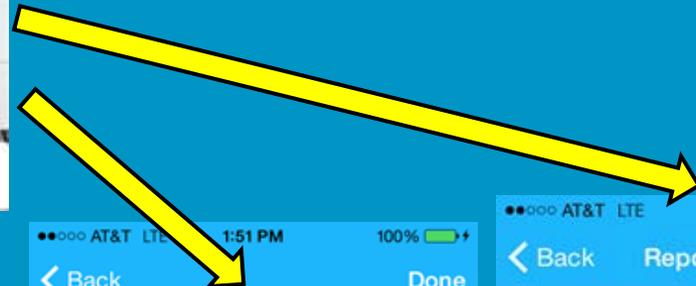
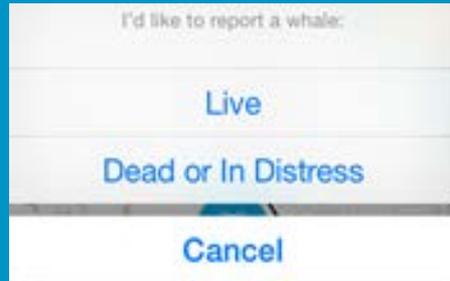
IMO approval



- **July 2012:** Safety of Navigation Sub-Committee (NAV) approves the TSS amendment proposals, sends the proposals to the Maritime Safety Committee (MSC)
- **Nov. 2012:** MSC adopts the amendment
- **July 2013:** TSS changes go into effect



Current activity: Whale Alert 2.0



Current activity: Incentive-based vessel speed reduction



Innovative and collaborative approach



- Protecting whales
- Improving air quality
- Ensuring navigational safety
- Pilot program
- Game changer





Personal & Professional Excellence



The team is honored for personal and professional excellence in collaborating across NOAA, with the USCG, and the maritime industry to move shipping lanes away from endangered whale feeding grounds in four national marine sanctuaries off of California. As a result of this action, the U.S. Department of Commerce has successfully secured international measures that safeguard the complex interdependence of marine ecosystems and the need for economic growth and development.

Acknowledgements



- USCG: Mike VanHouten, LT Lucus Mancini, CDR Kiley Ross & District 11 staff and San Francisco Vessel Traffic Service
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- CBNMS: Dan Howard, Lisa Etherington, Pam Vanderleeden
- ONMS WCR: Bill Douros
- SBNMS: Michael Thompson, Brad Cabe & Leila Hatch
- Point Blue: Jaime Jahncke, Meredith Elliott, Julie Howar
- IFAW: Patrick Ramage, Margaret Cooney, April Wobst
- Pacific Merchant Shipping Association: John Berge, TL Garrett
- NMFS Staff: Thomas J. Moore, Paul C. Fiedler, Karin A. Forney, Elizabeth A. Becker, Robert Brownell, Jay Barlow, Lisa Balance, John Calambokidis, Monica L. DeAngelis, Susan J. Chivers, Megan F. McKenna, & countless SWFSC survey staff.
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