

Whale Conservation on the US West Coast: Decreasing the risk of deadly ship strikes

R. Cotton Rockwood and Jaime Jahncke, PhD



West coast whales



Blue whales

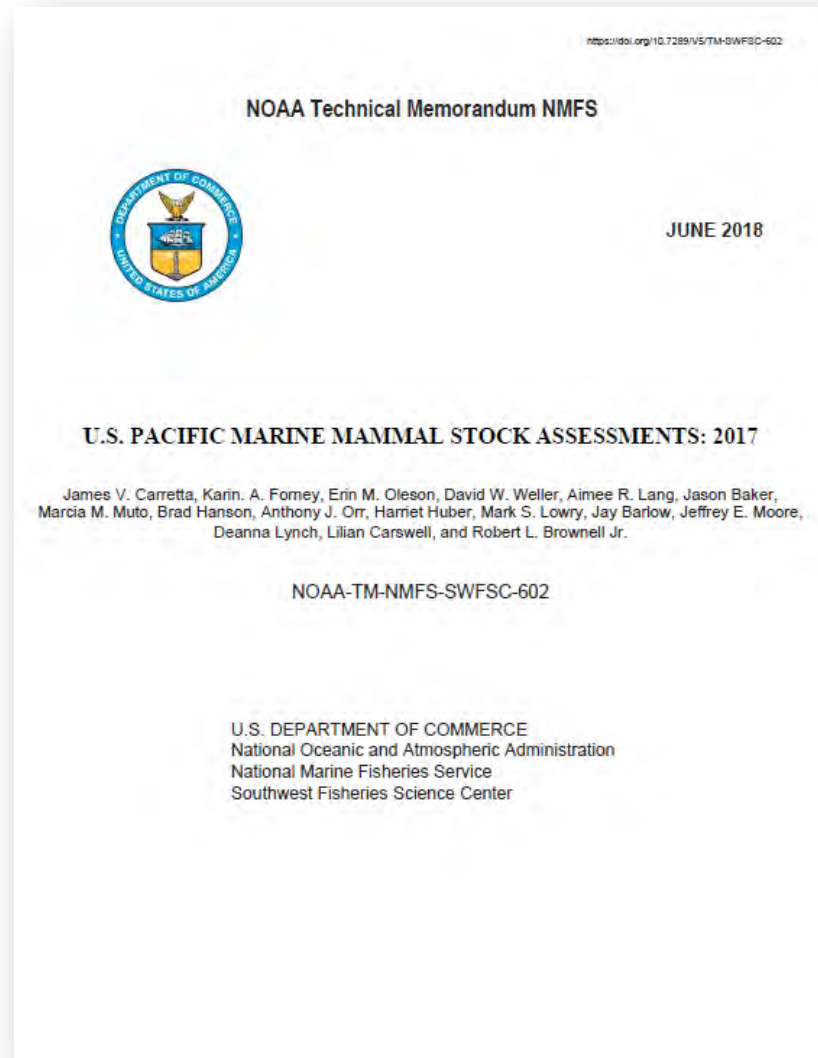


Humpback whales



Fin whales

Annual whale stock assessment by NOAA



Blue whales

Endangered

Minimum population = 1,551

Maximum take by U.S. = **2.3** whales/yr

Humpback whales

Threatened/Endangered

Minimum population = 1,918

Maximum take by U.S. = **11** whales/yr

Fin whales

Endangered

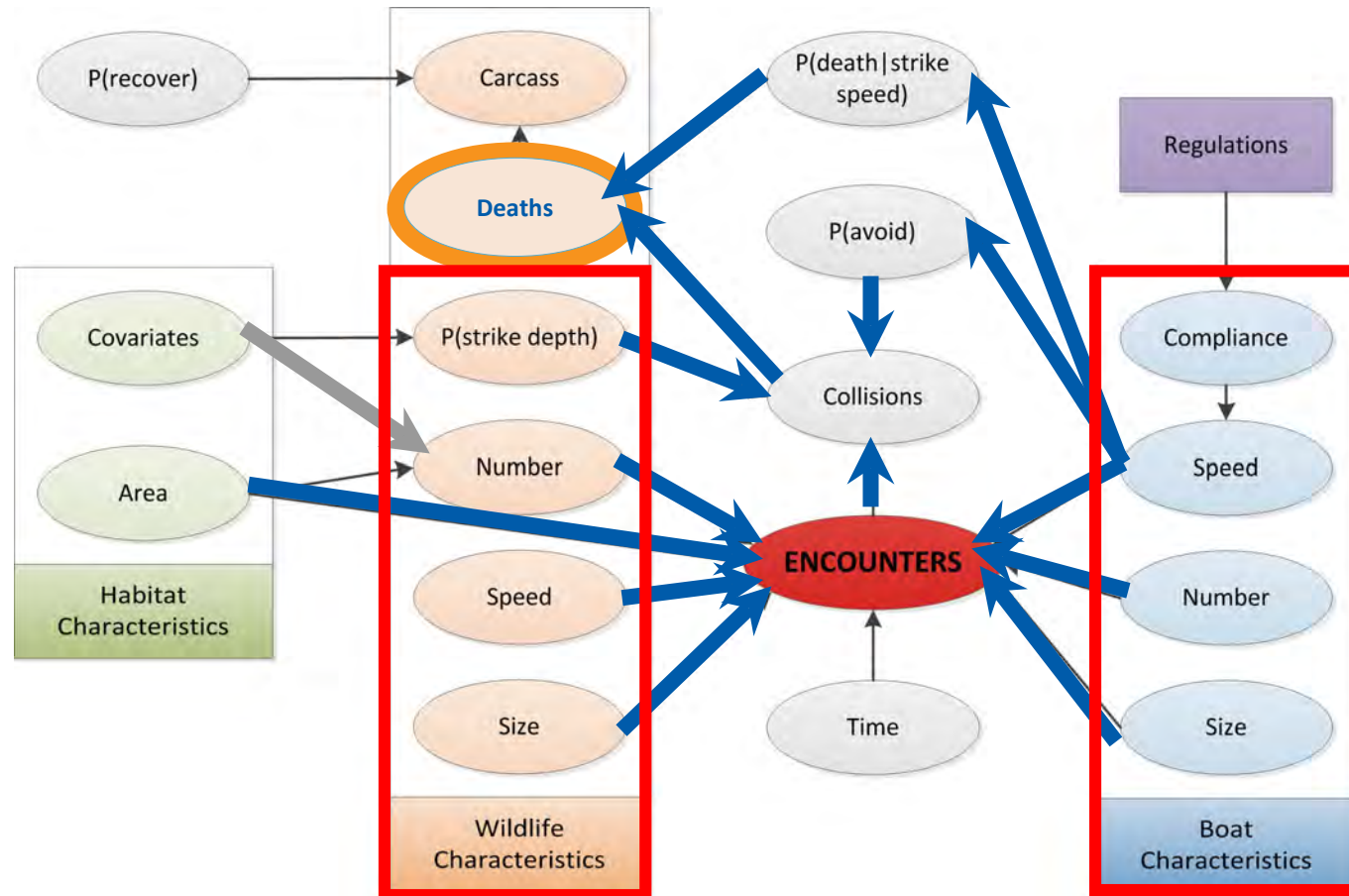
Minimum population = 8,127

Maximum take by U.S. = **81** whales/yr

Strandings are a poor metric

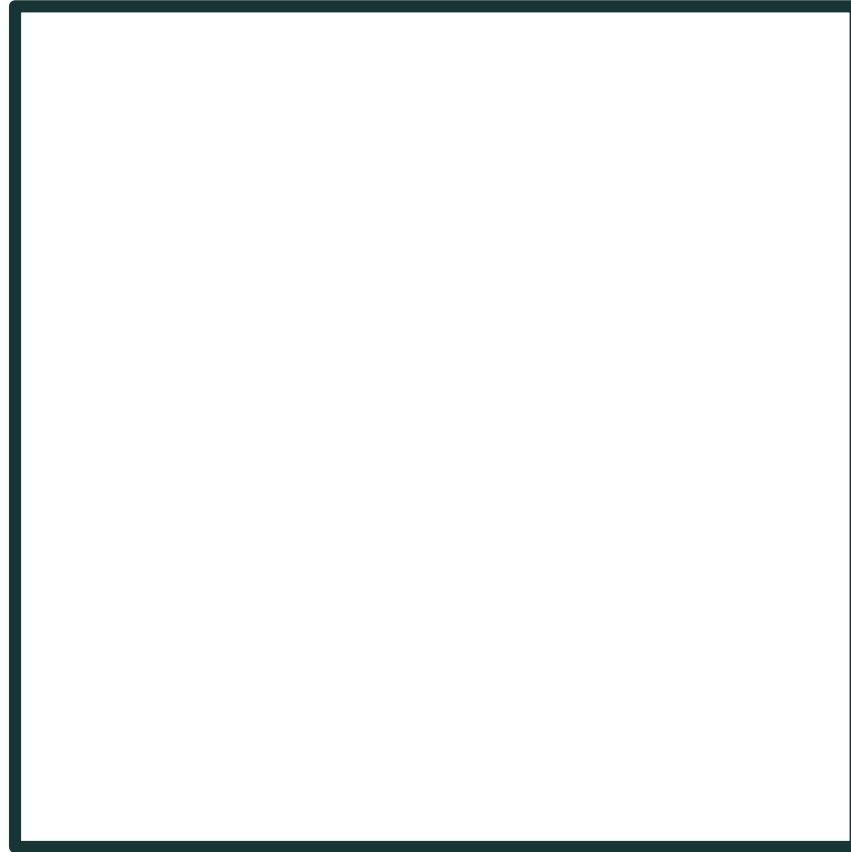


Spatial strike model



Martin *et al.* 2015

Naval encounter model

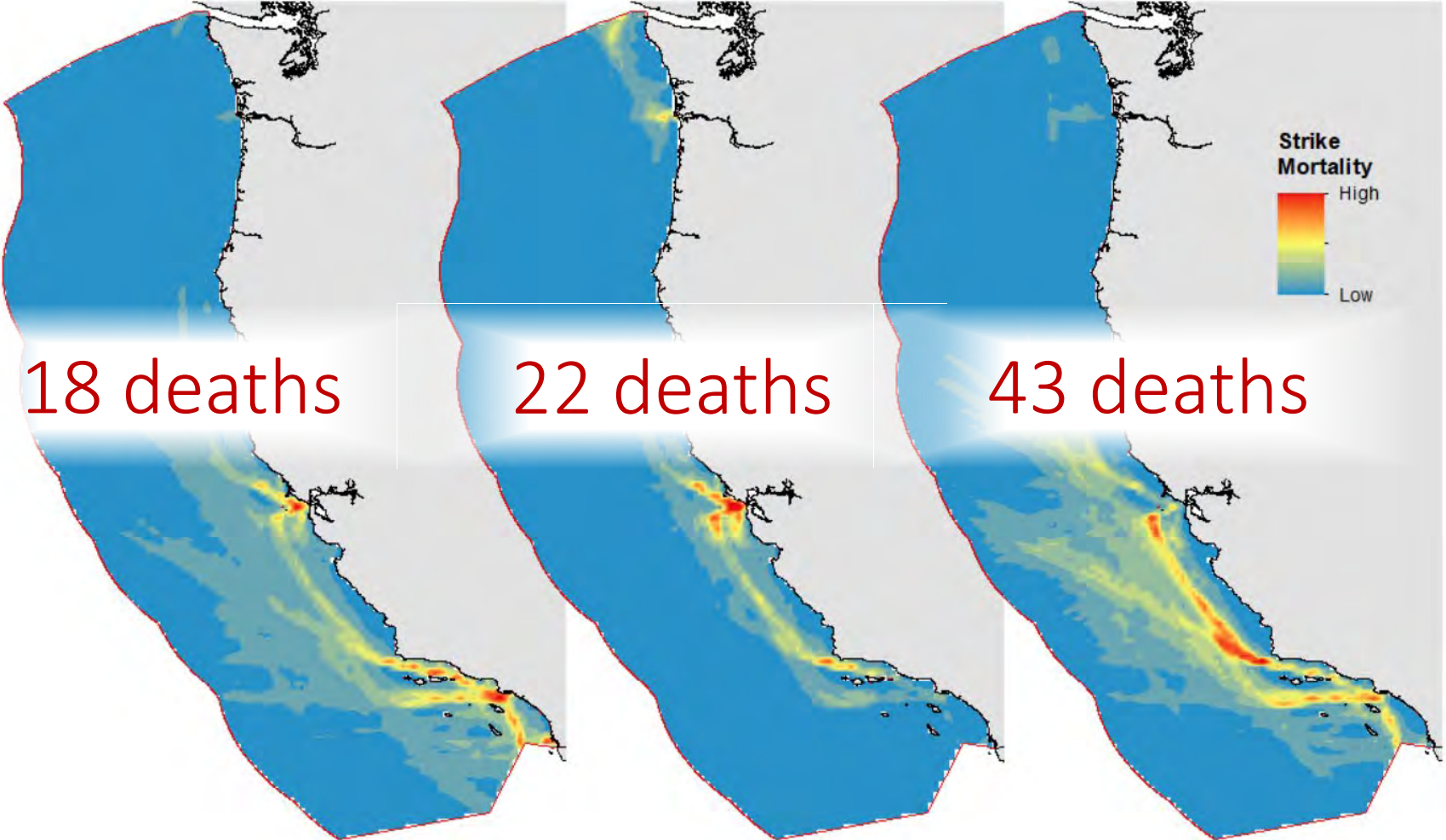


Where are whales struck?

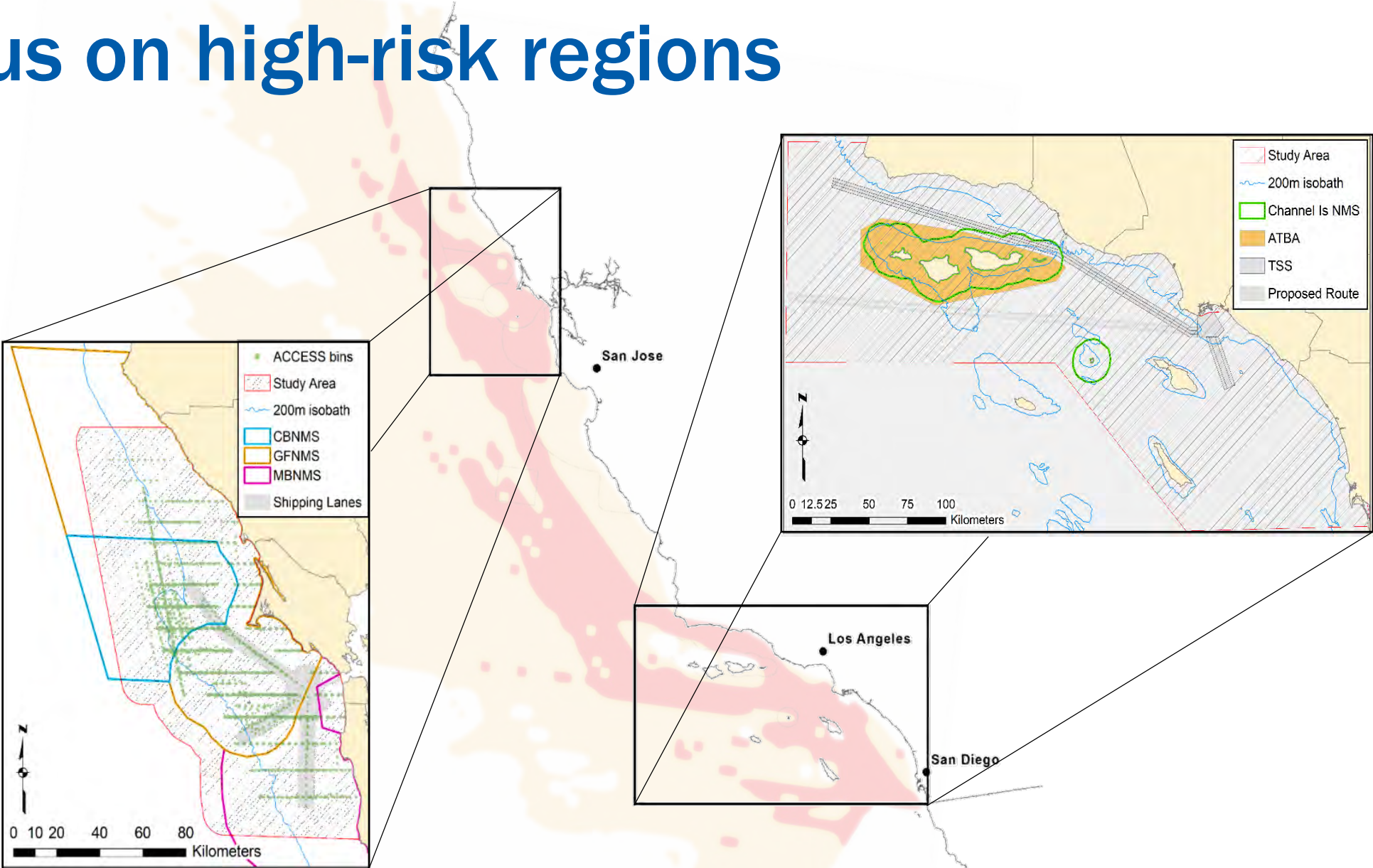
Blue Whale

Humpback Whale

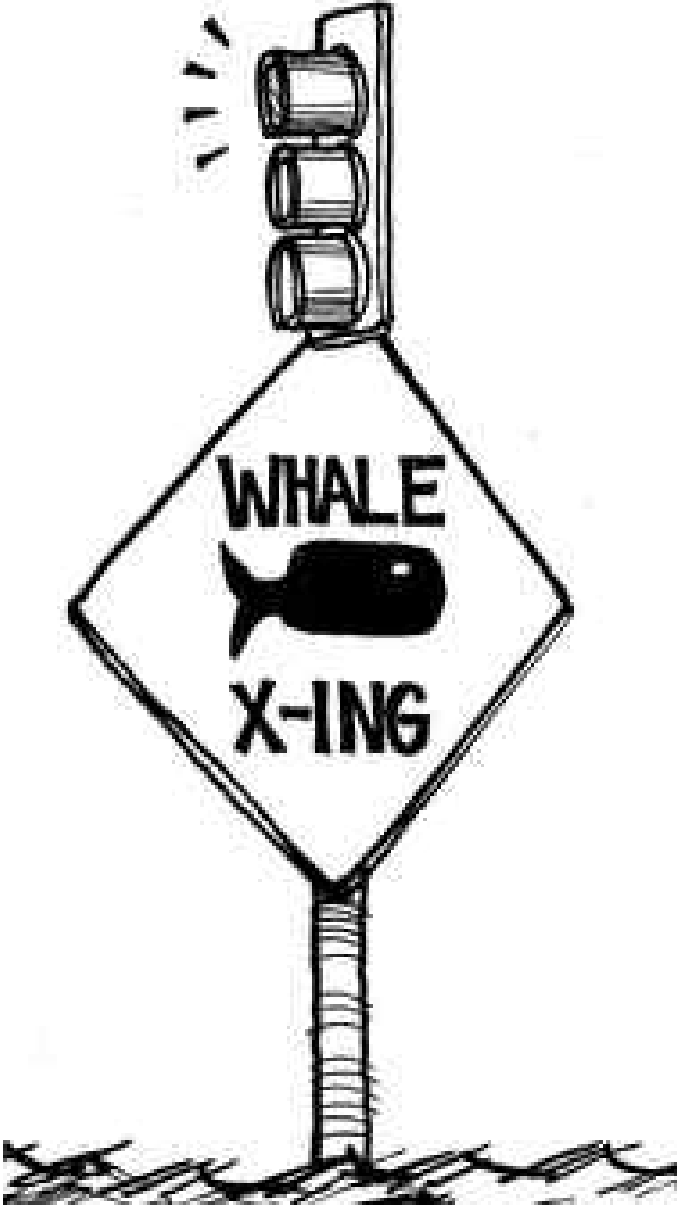
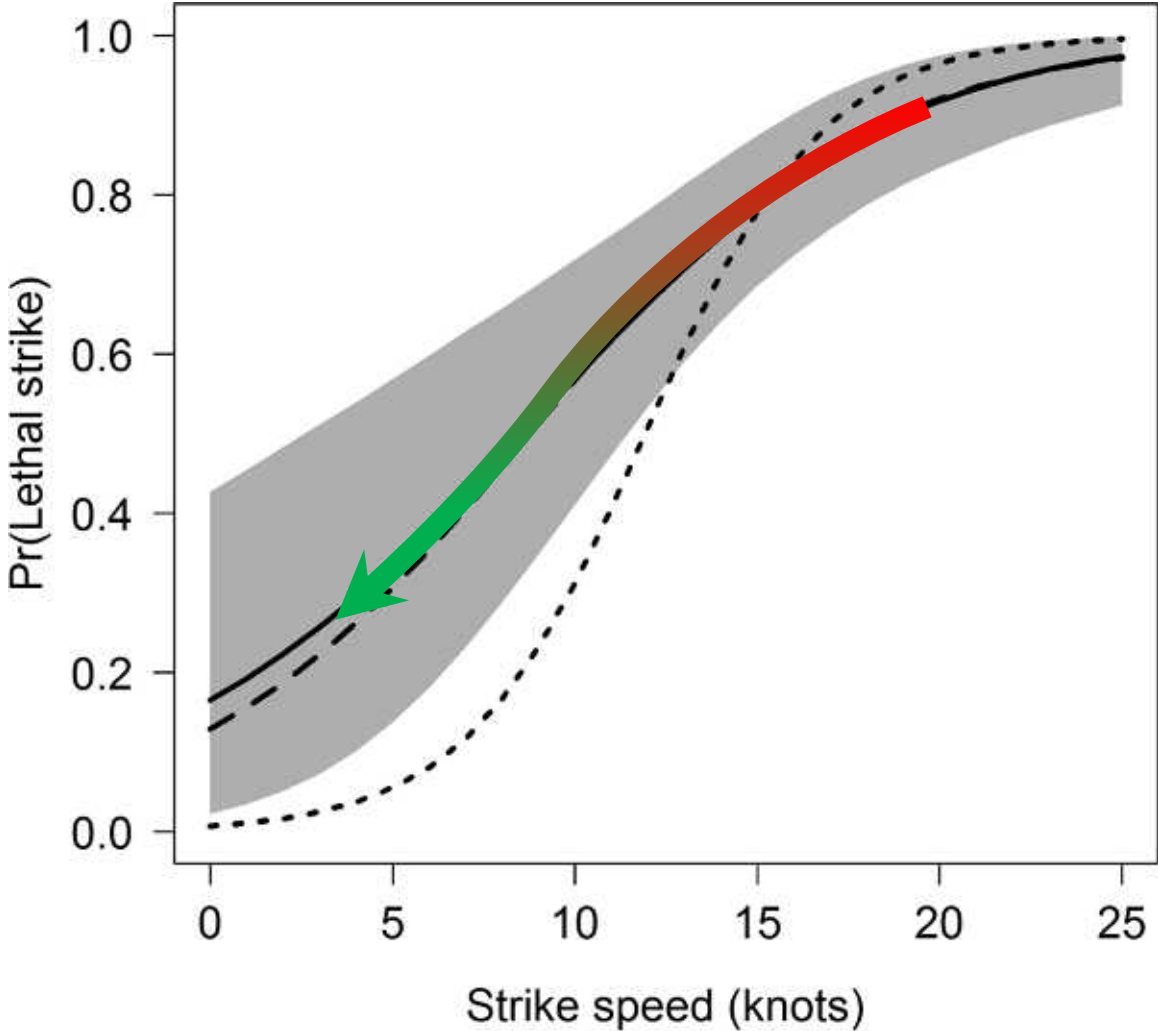
Fin Whale



Focus on high-risk regions



What can we do?

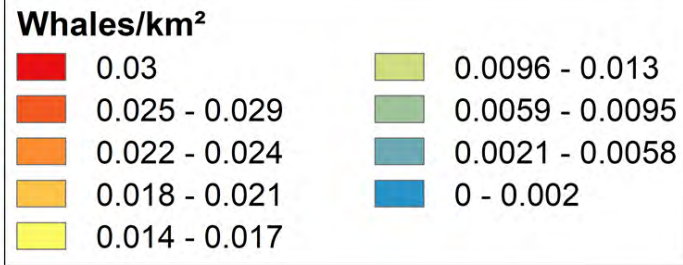
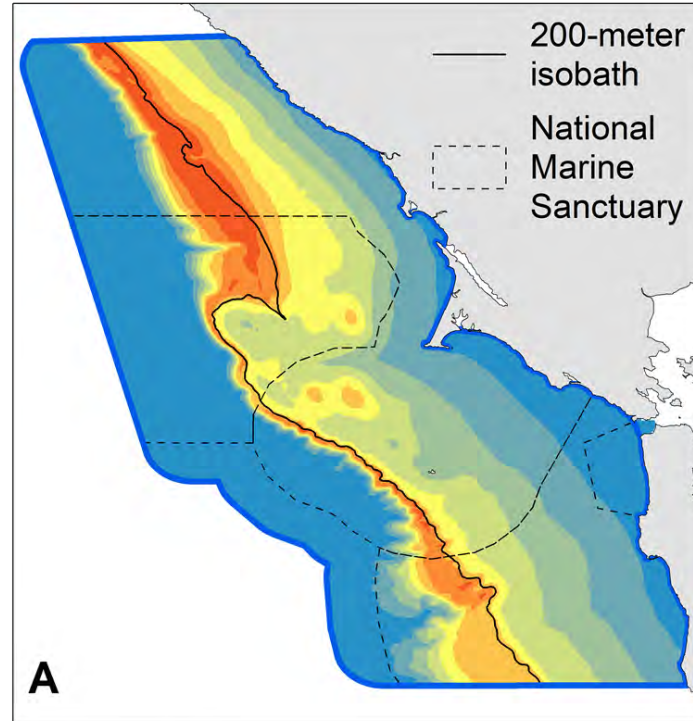


Assessing the potential of speed restrictions

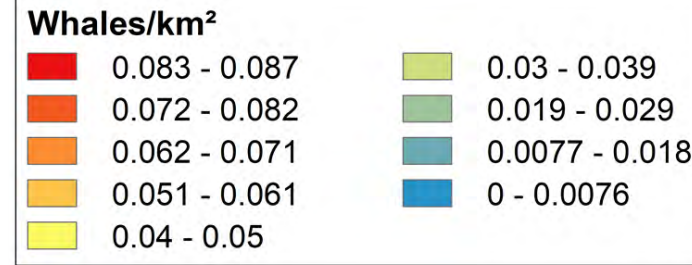
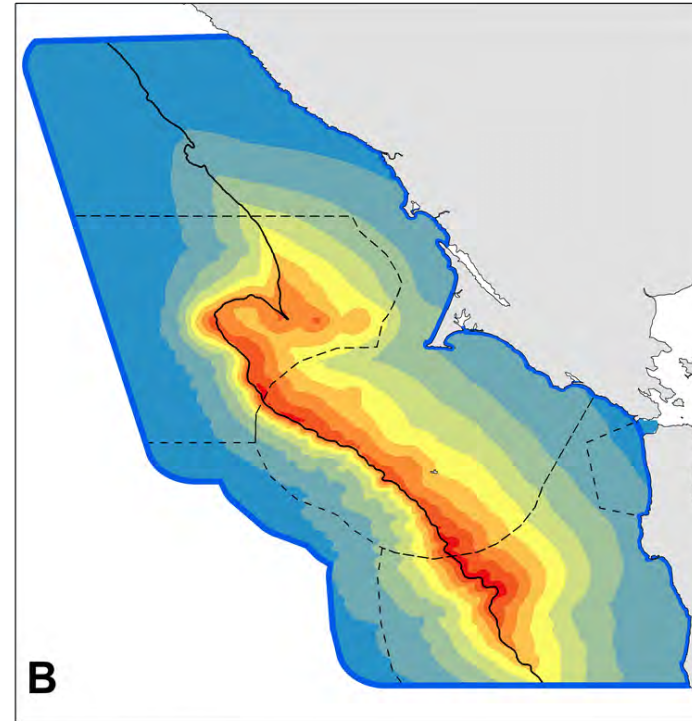
- **Model local mortality patterns**
- **Assess Voluntary Speed Restrictions (VSR)**
- **Simulate potential management strategies**
- **Recommend actions**

N. California: where are the whales?

Blue Whale



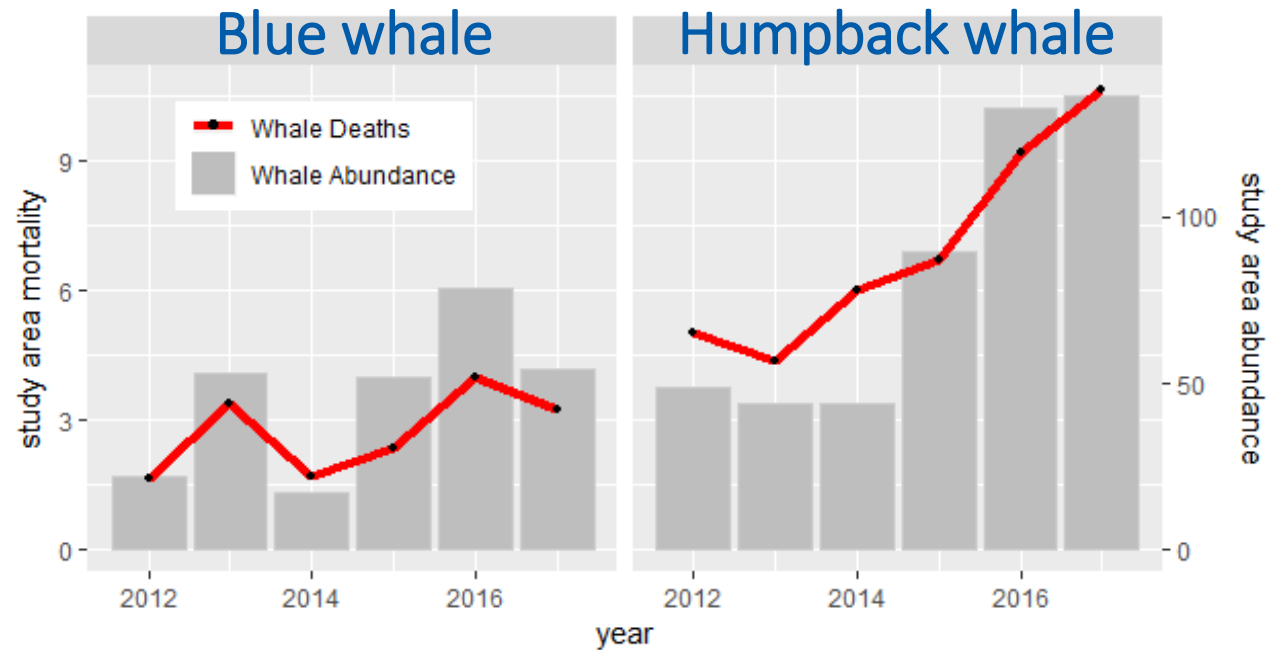
Humpback Whale



Trends in abundance and mortality

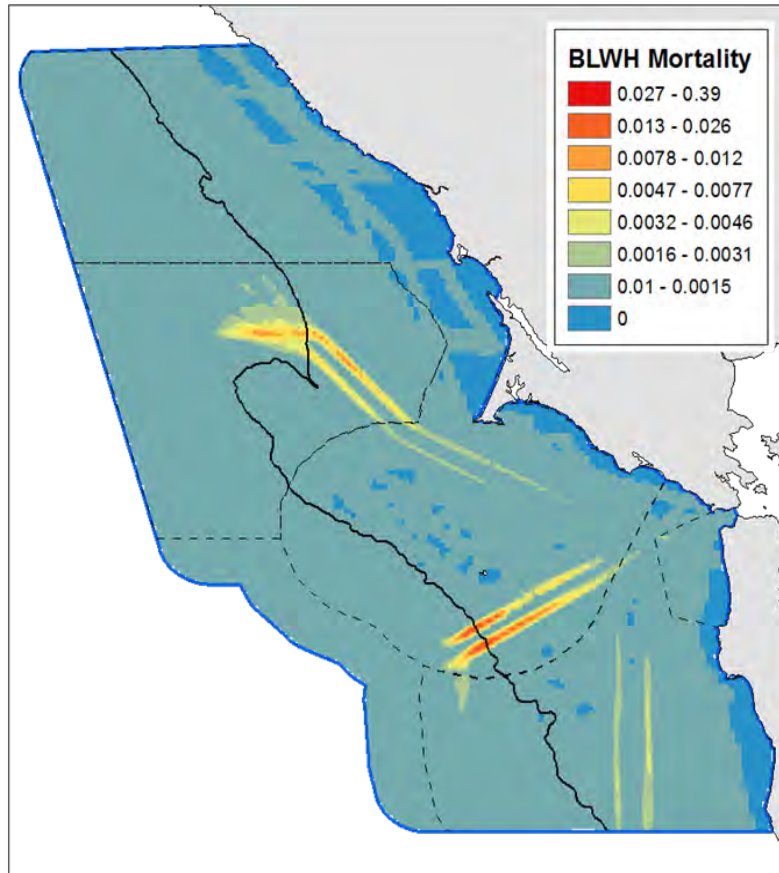
Local abundance has increased 2012 → 2017

↑ abundance = ↑ modeled strikes

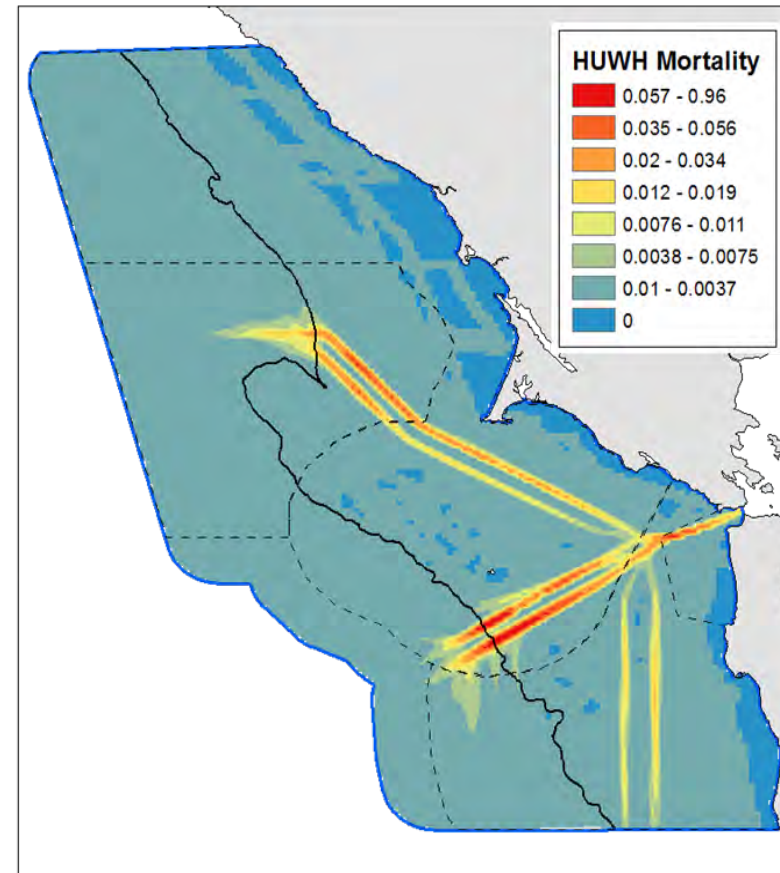


Where are the strikes?

Blue Whale
2.7 deaths.



Humpback Whale
7 deaths

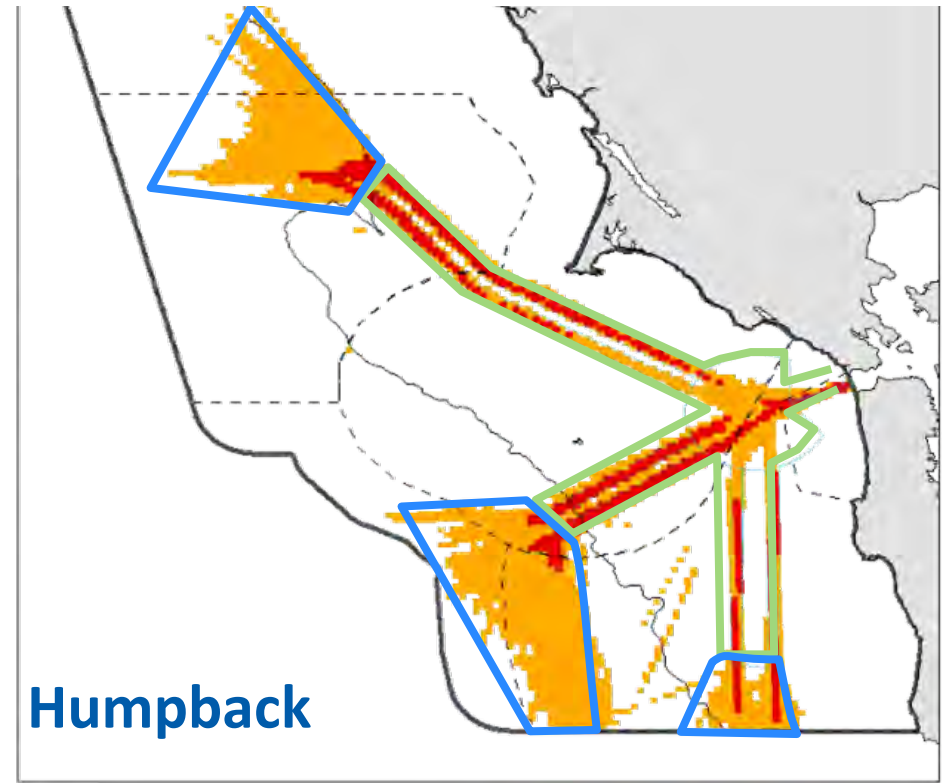
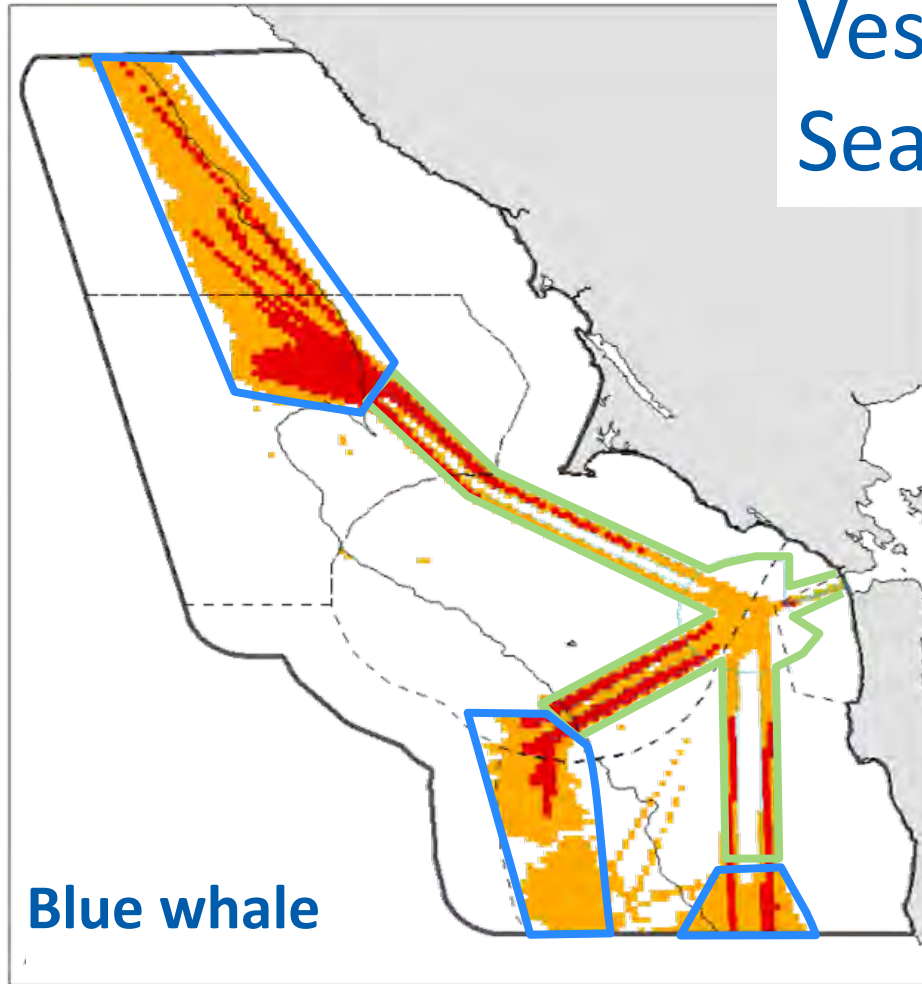


--- National Marine Sanctuary
— 200m isobath

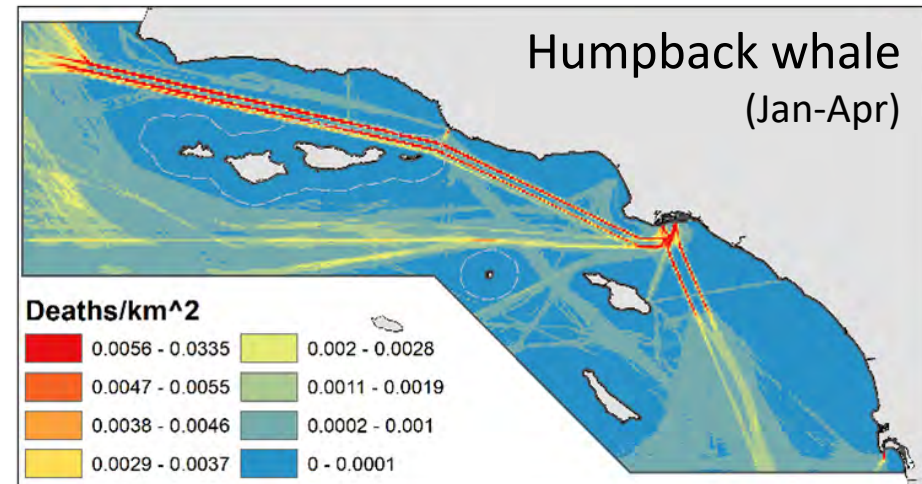
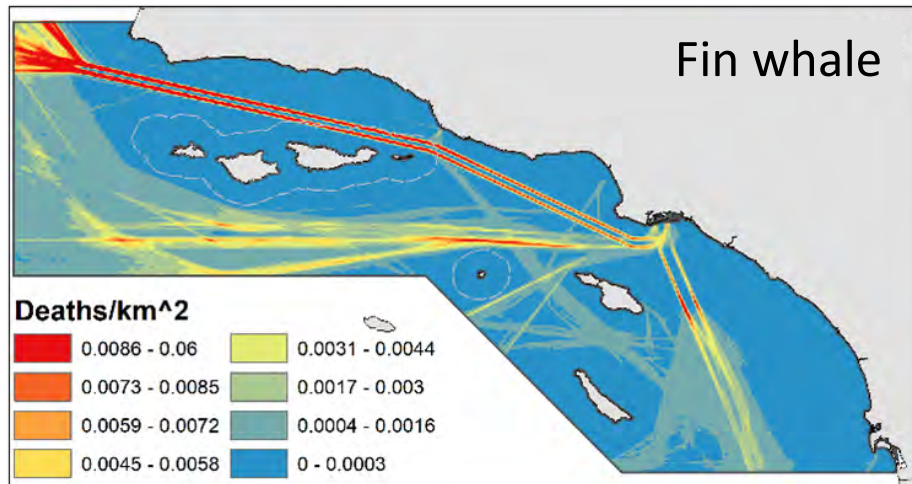
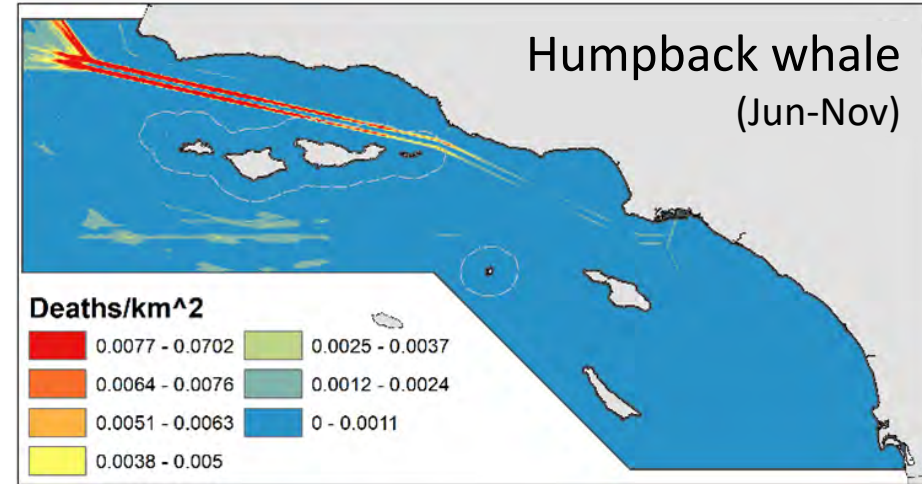
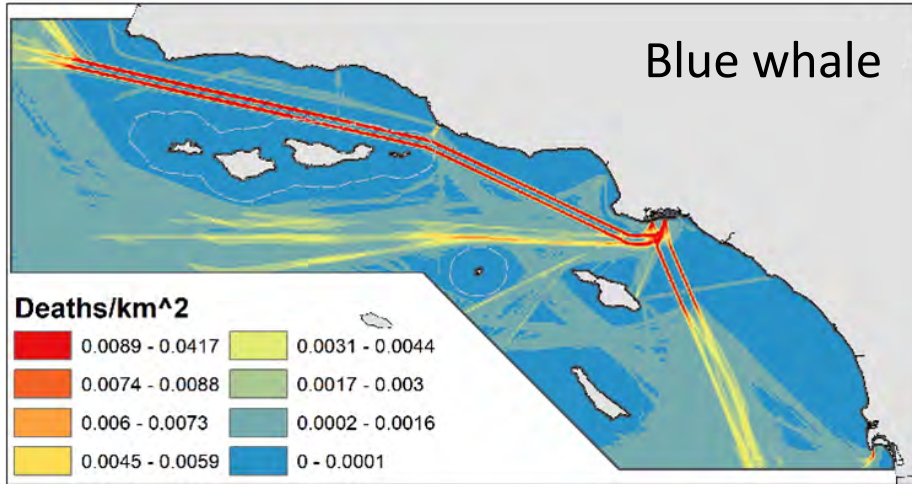
Potential management solutions

- Shipping lanes
- Potential new VSR areas

Vessel speed reduction and Seasonal management areas



Southern California strikes



Assessing Voluntary Speed Restrictions

Northern vs. Southern California

Northern

	Percent Change
Blue whale	-12.0%
Humpback	-9.5%

Southern

	Percent Change
Blue whale	-2.3%
Humpback	-2.5%

Success so far... and targets to improve

N. California

10-12% decrease in deaths in 2016 & 2017

...and targets to improve

Improved cooperation from ships = **23 – 24%**
fewer deaths

Speed limits at ends of the lanes = **30 – 35%**
fewer deaths

Success so far... and targets to improve

S. California

0-3% decrease in deaths in 2016 & 2017

...and targets to improve

Improved cooperation from ships = **19 – 32%**
fewer deaths

Summary

- Increase vessel cooperation in VSR program through increased outreach or mandatory speed regulations
- Establish seasonal management areas at the end of the lanes and implement VSR in these high-risk regions
- N. California: Consider eliminating southern and northern lanes and extending western lane
- S. California: Consider an official TSS south of Channel Islands NMS

Thank You

Cordell Bank NMS

Greater Farallones NMS

Angell Family Foundation

Battery Powered

Elinor Patterson Baker Trust

Firedoll Foundation

Gordon and Betty Moore Foundation

Moore Family Foundation

Thelma Doelger Trust for Animals

ACCESS volunteers and donors

**BATTERY
POWERED**

GORDON AND BETTY
MOORE
FOUNDATION



Point Blue
Conservation
Science



Thank You