Bridges and barriers to dynamic ocean management: *perspectives from scientists, managers, and marine resource users*

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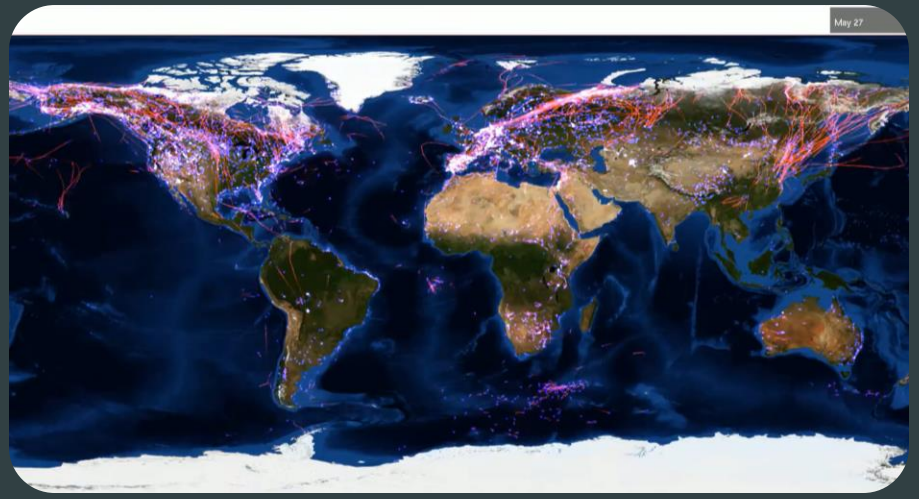
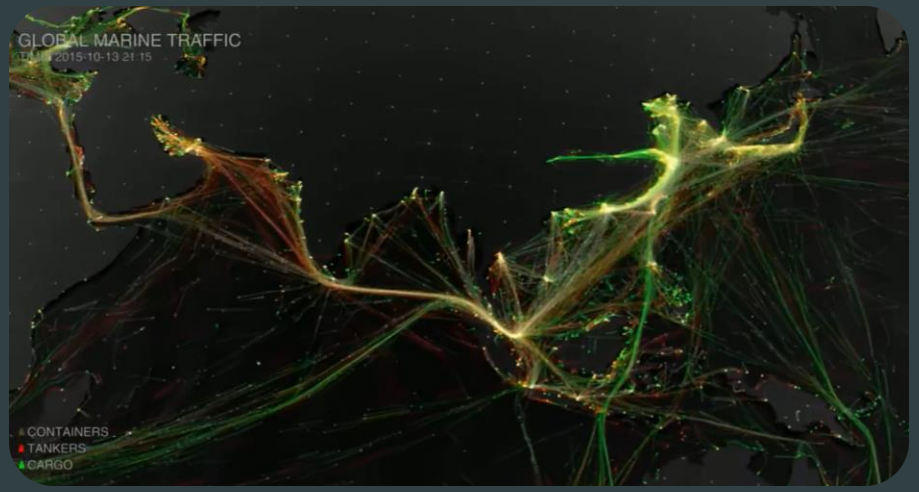
Yokohama, Japan | November 2025

Conservation and management is linked to where species and marine resource users are

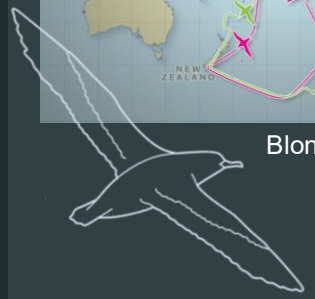




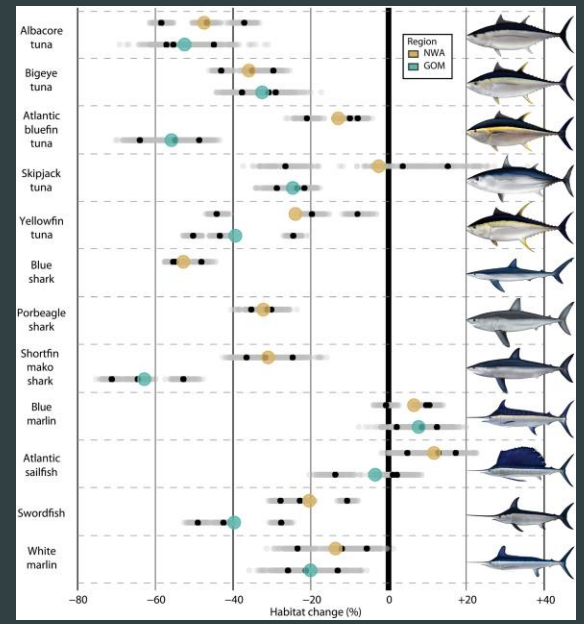
PC: MoveBank, Aurecon

Large and increasingly dynamic movement patterns can challenge area-based approaches

Blondin et al., 2022



Sooty shearwater
Ardenna grisea



Braun et al., 2023

Human-wildlife conflict

Abrahms et al., 2023

Managed or protected area revisions

Lezama-Ochoa et al., 2025

Reduce policy efficacy

Pentz & Klenk, 2022

Dynamic ocean management (DOM)

Management that changes in space and time in response to the shifting nature of the ocean and its users based on the integration of new biological, oceanographic, social, or economic data.

Biological

Social

Oceanographic

Economic

U.S. West Coast Dungeness Crab Fishery

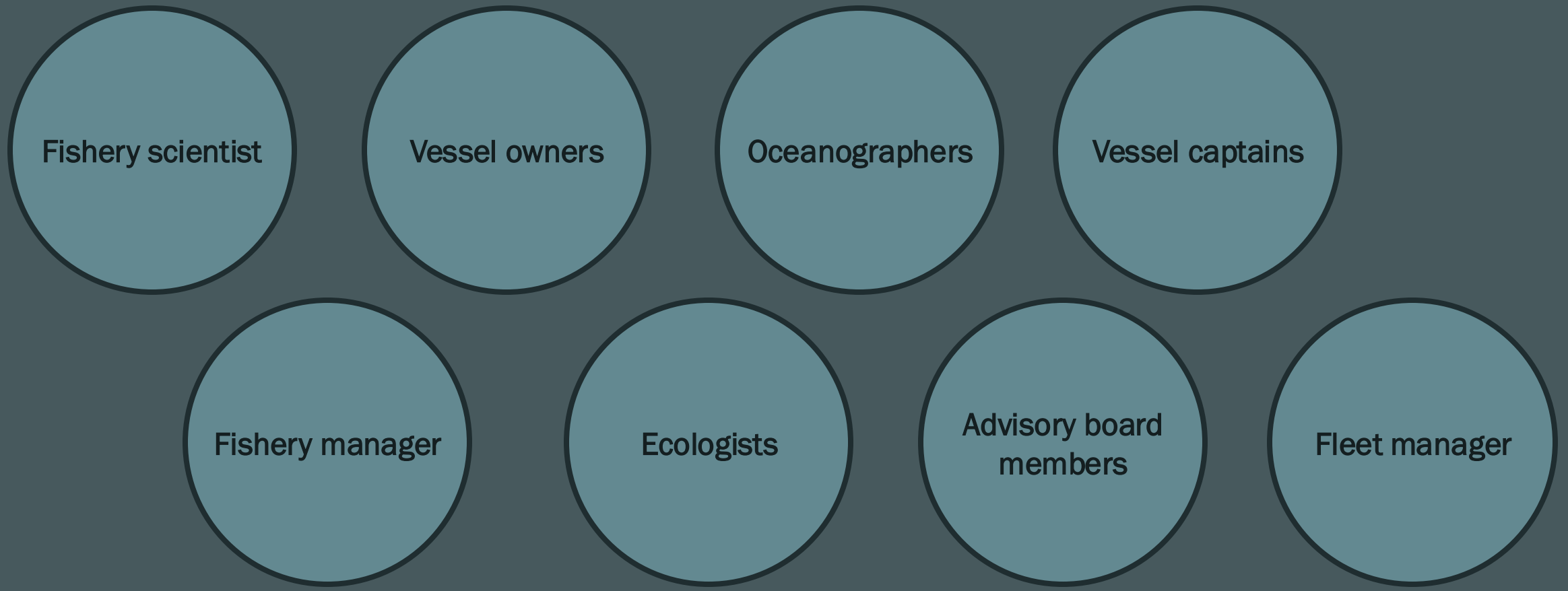
San Francisco Shipping Channel

Central California Groundfish Fishery

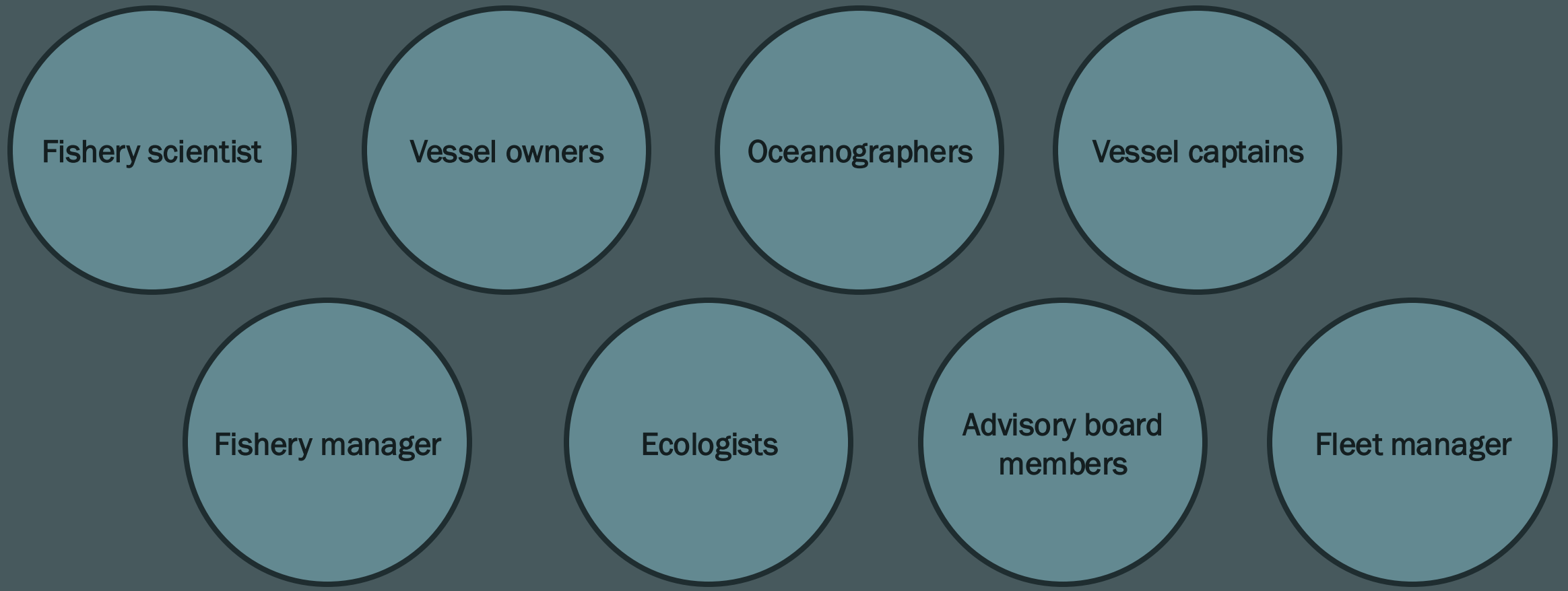
Santa Barbara Shipping Channel

California Drift Gillnet Fishery

Lewison et al., 2015; Maxwell et al., 2015; Hobday et al., 2014



DOM requires collaboration



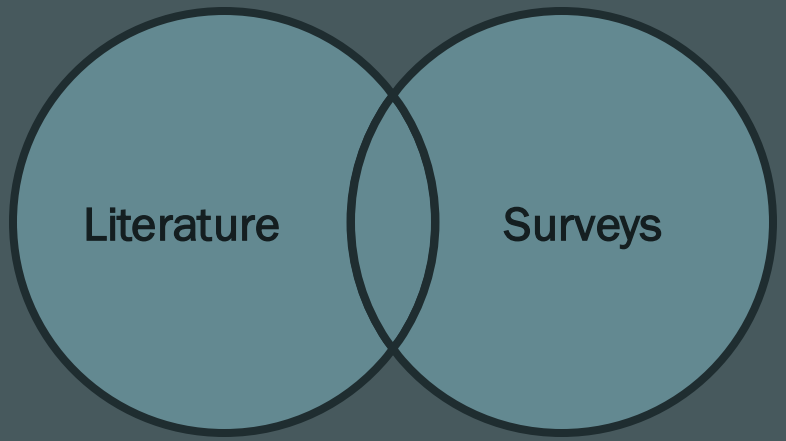
DOM requires collaboration

In this study…

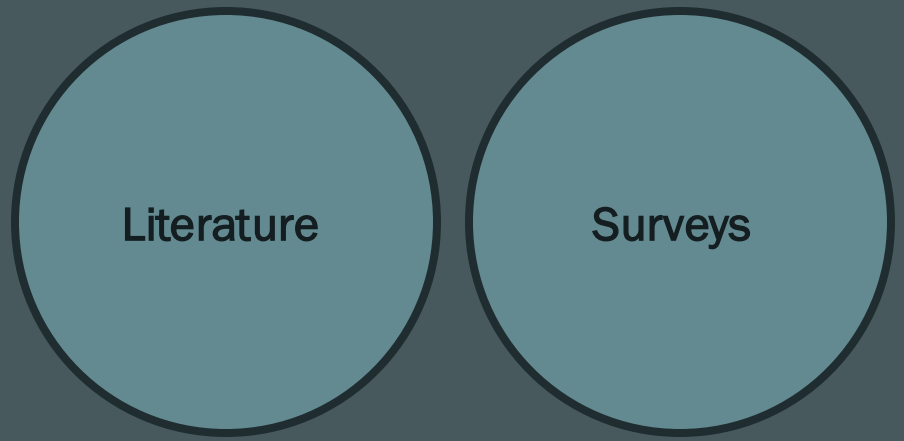
Bridges

Barriers

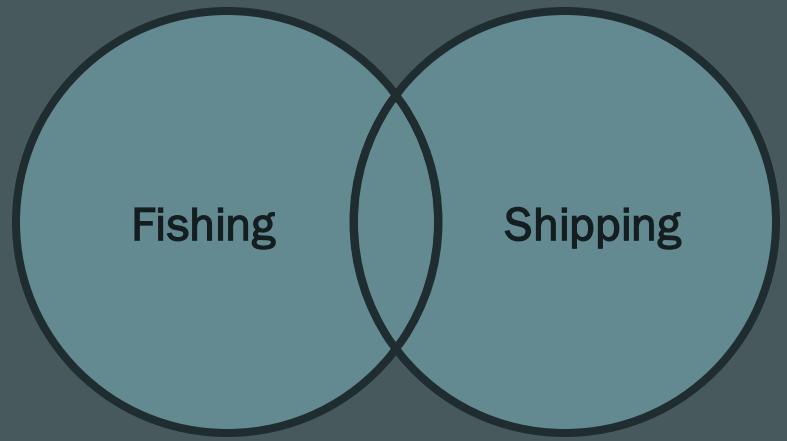
Aim #1: What are the bridges and barriers to DOM according to multiple perspectives?



Aim #2: What new information have surveys added?



Aim #3: How do bridges and barriers vary between shipping and fishing?



Systematic literature review

1

Articles identified using Web of Science and NOAA Institutional Repository

(n = 372)

2

Articles screened for relevance

(n = 151)

3

Articles included in review

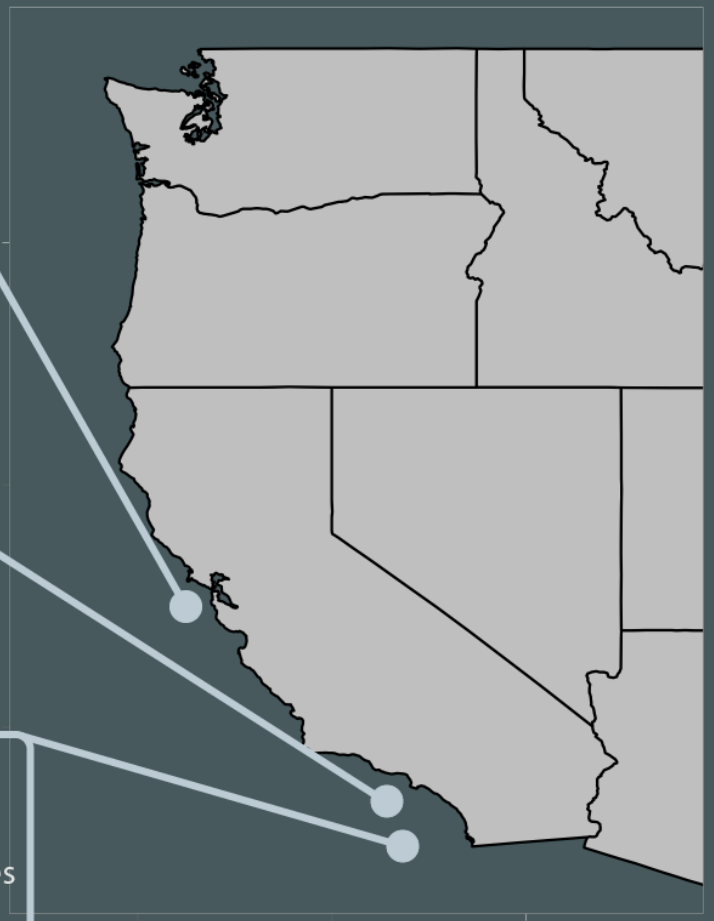
(n = 118)

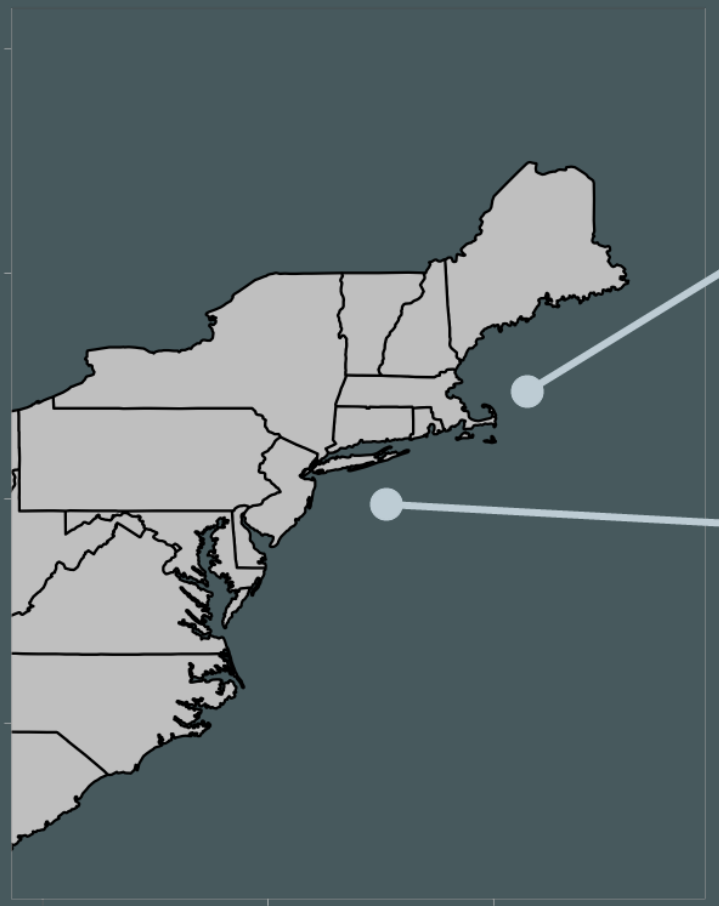
(see Table 1). Industry participation has been particularly crucial to align incentives and ensure compliance [76]. In the multi-resource and

also increases [83]. However, increasingly dynamic management schemes are more difficult to administer and require significant data acquisition, analysis, and distribution. The degree of dynamism and

Siders et al., 2016

Interest-holder survey





Whale Safe

- Shipping vessels
- Baleen whales
- 10 responses

EcoCast

- U.S. West Coast Swordfish fisheries
- Marine mammals, sea turtles
- 1 response

Yellowtail flounder bycatch avoidance program

- U.S. Sea Scallop fishery
- Yellowtail Flounder
- 8 responses

River herring bycatch avoidance program

- U.S. Northwest Atlantic mid-water trawl fishery
- River herring
- 3 responses

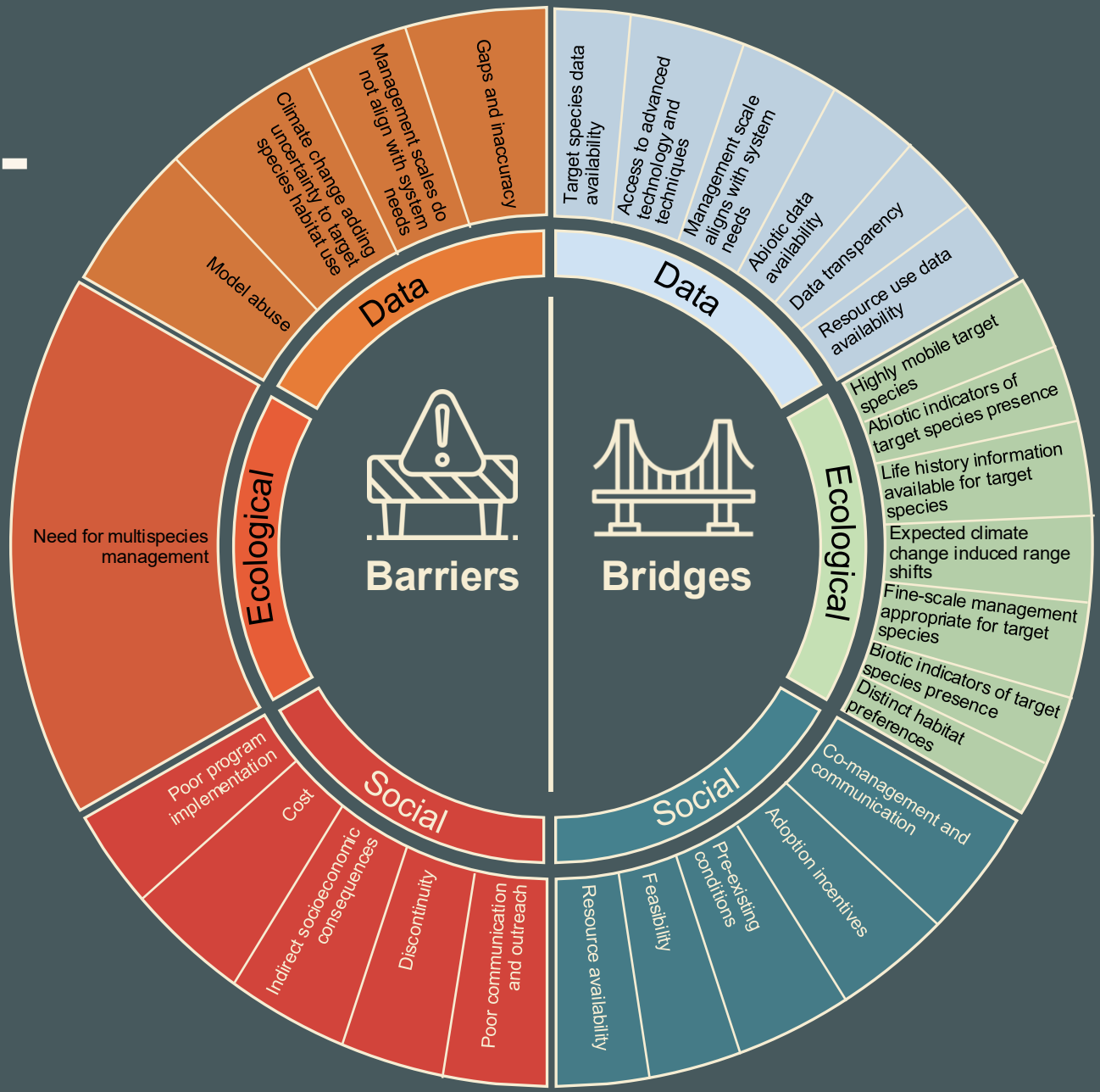
Interest-holder survey

DOM Survey

Q1: What worked with DOM, or what was "successful"?	"Fleet was informed of how close they were to hitting the catch caps, which was helpful to direct fishing effort"
Q2: What didn't work with DOM, or what would you change?	"data showing whales were not struck or less whales were struck"

Literature: themes & sub-themes

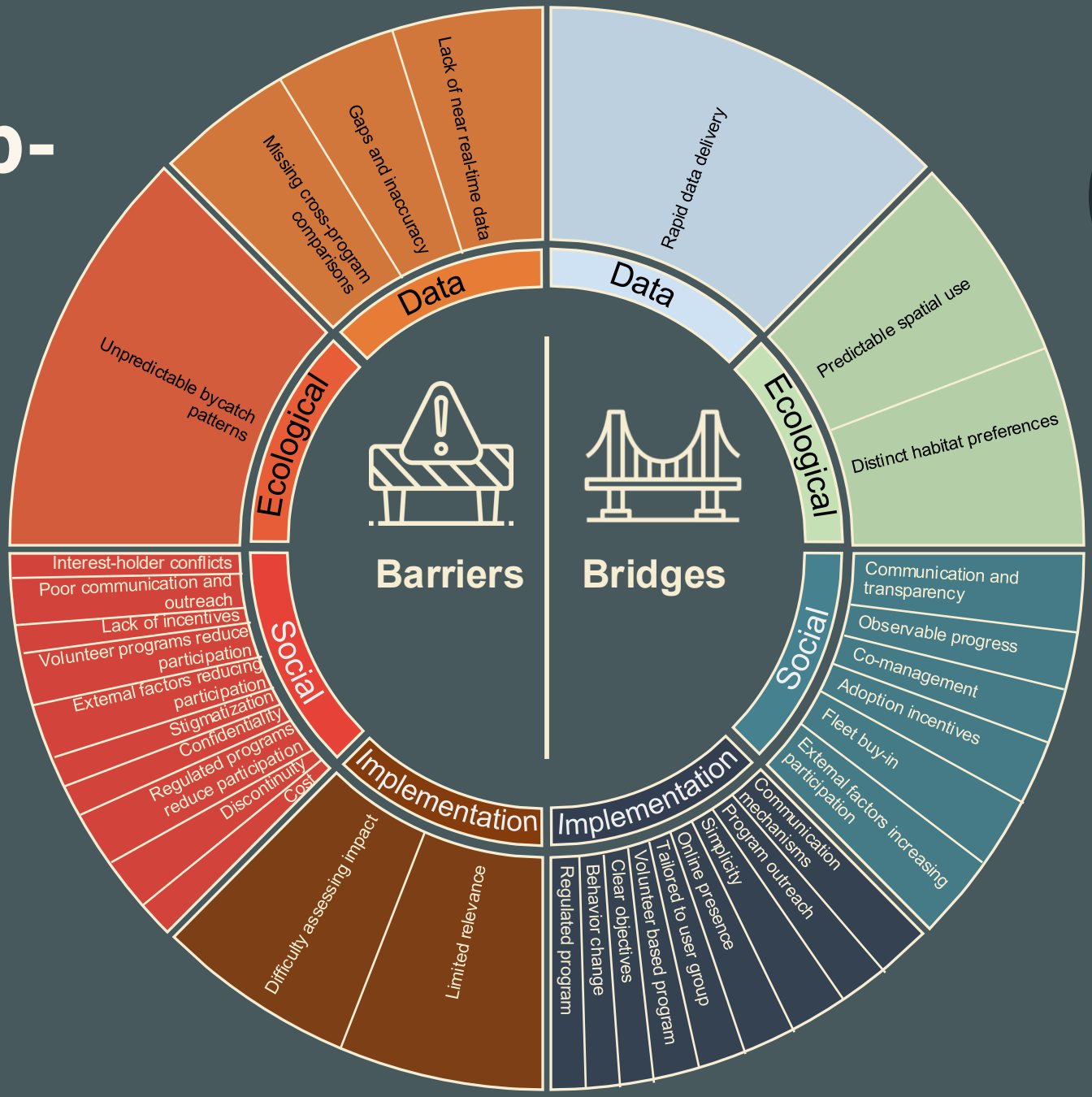
Aim #1



The literature revealed data, ecological, and social themes

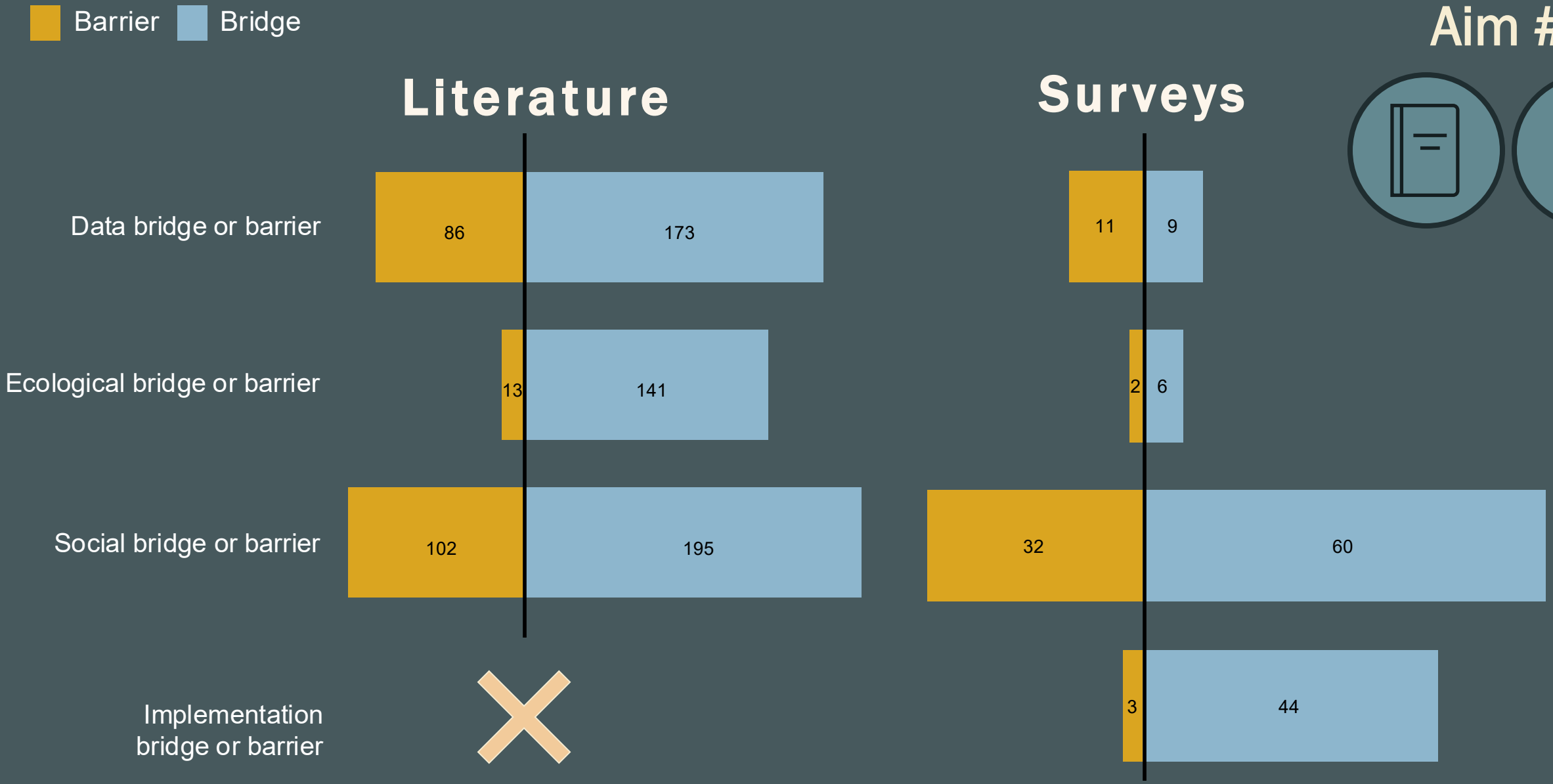
Survey: themes & sub-themes

Aim #1



Surveys revealed additional social and implementation sub-themes

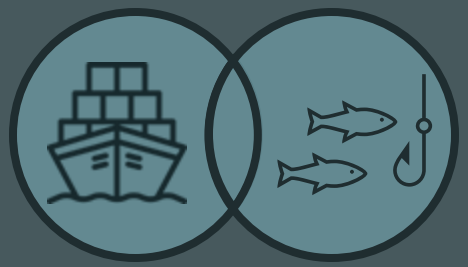
Aim #2



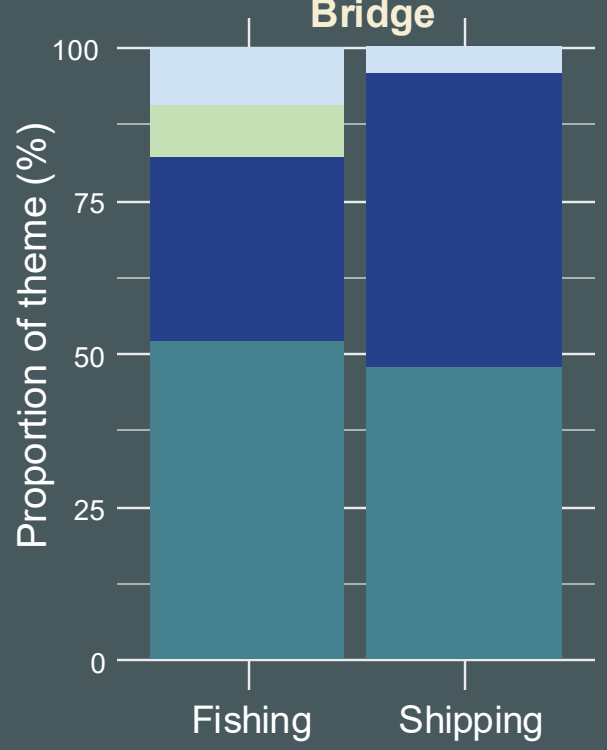
Survey respondents mentioned social and implementation themes more regularly

Aim #3

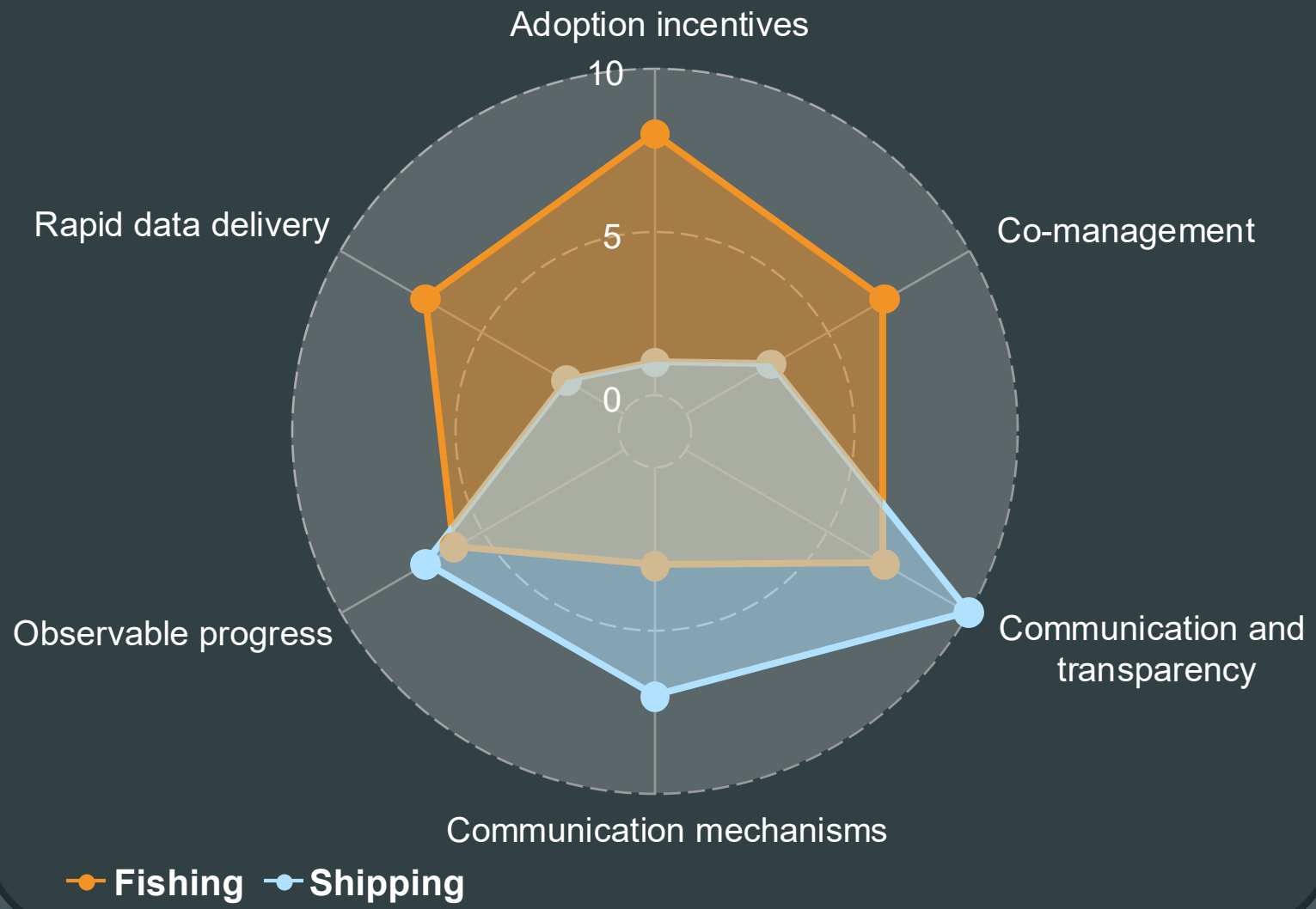
Surveys only



Data
Ecological
Social
Implementation



Top bridge sub-themes



Aim #3

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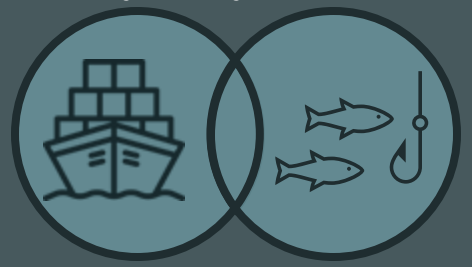
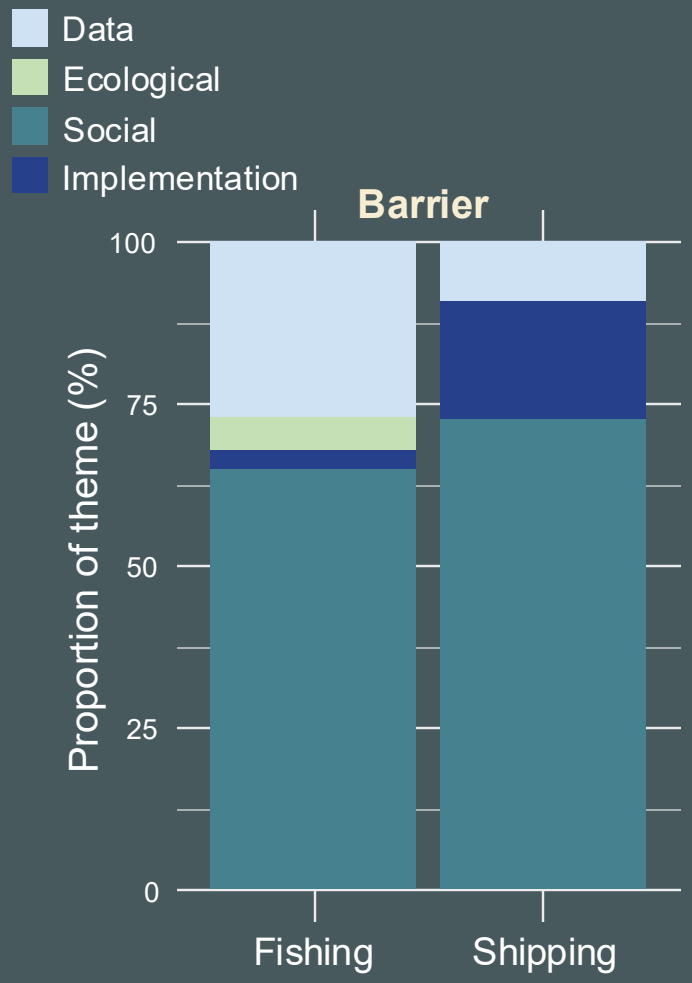
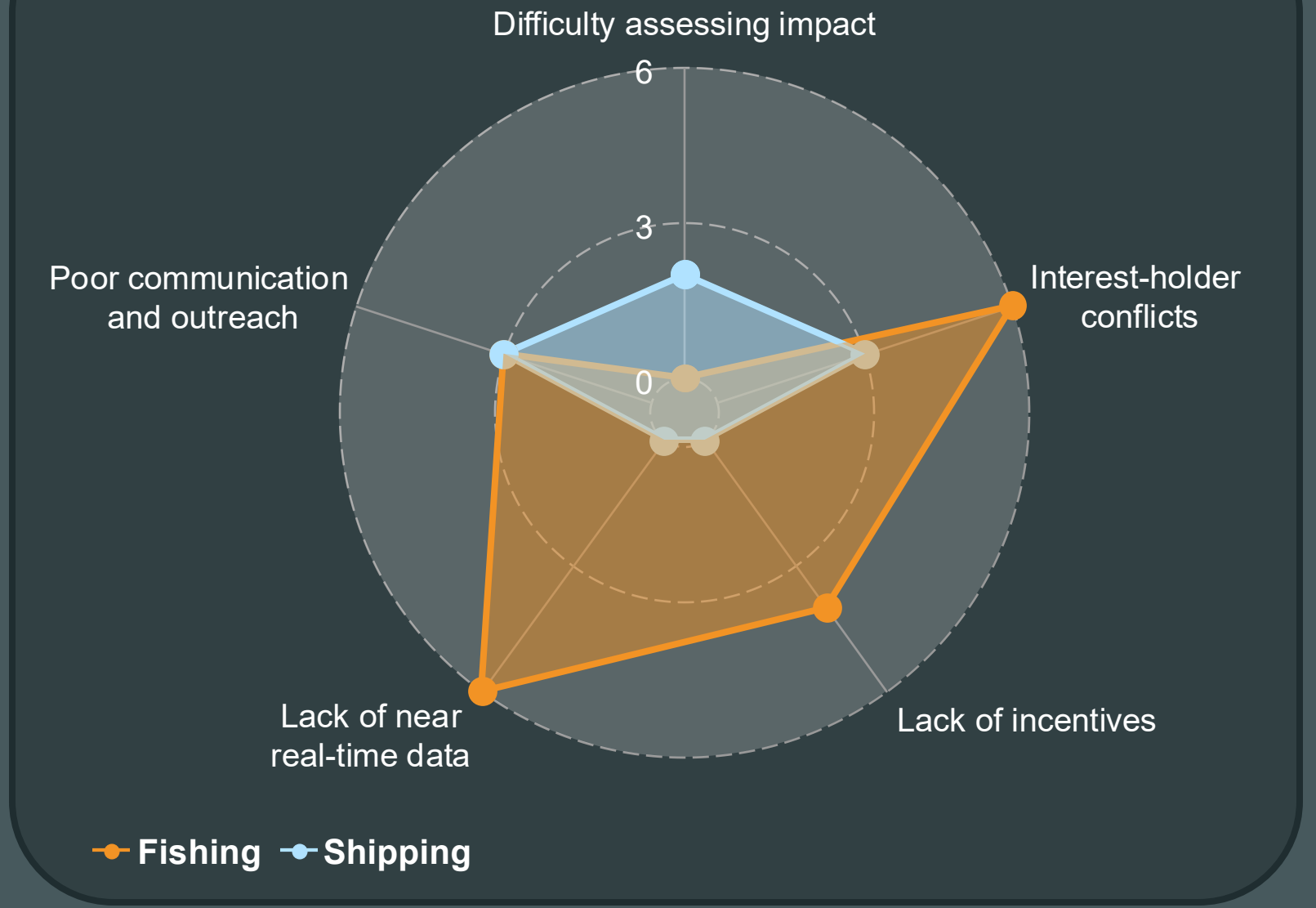




Top barrier sub-themes



Efficacy of DOM relies on many factors according to many interest-holders

Perspectives from the literature only provide part of the story

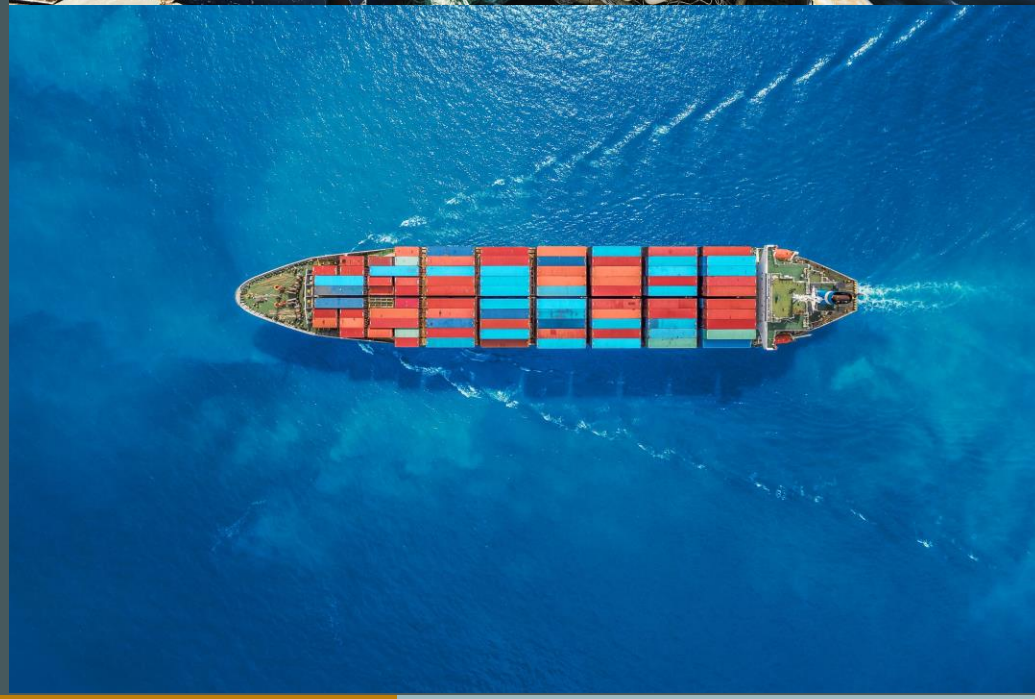
Identifying social and implementation themes may be especially important for future applications

- Conflict management
- Providing near real-time data
- Adoption incentives
- Communication

Theme and sub-theme importance varies by industry

It depends!!

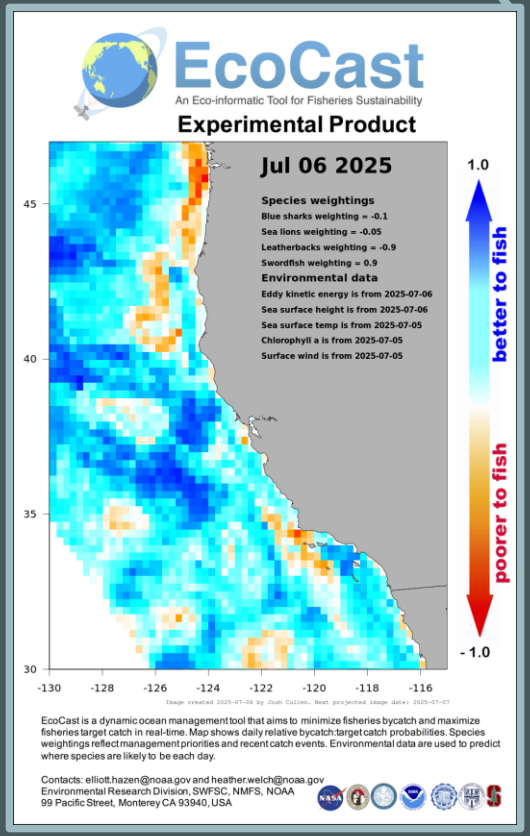
Understanding system specific needs and priorities will be key for DOM's success



Recommendations for DOM continue to expand

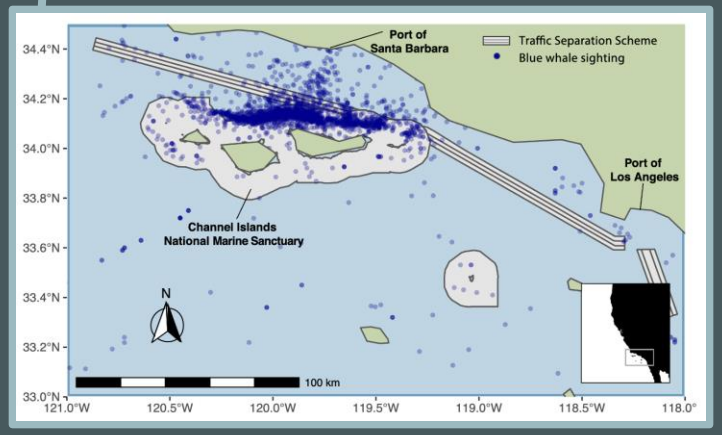
Presently

Bycatch reduction



Hazen et al., 2018

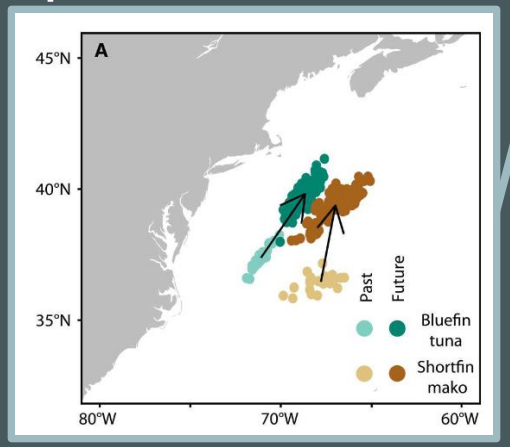
Whale collision risk



Hausner et al., 2021

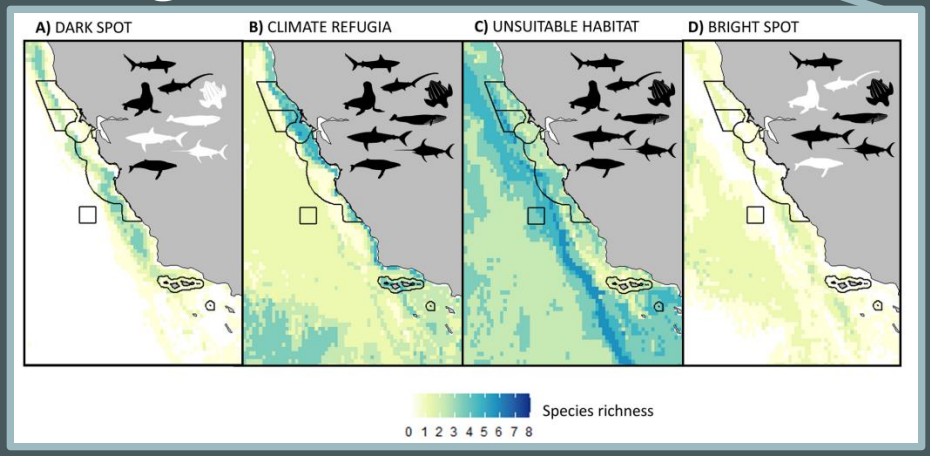
...and in the future

Species redistributions



Braun et al., 2023

Managed area revisions



Lezama-Ochoa et al., 2025

Future for modern approaches that can respond to ocean variability

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Thank you!

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