Natural capital approaches for integrating community benefits into offshore wind

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Katie Arkema
Senior Earth Scientist
PNNL and University of Washington

Kevin Duffy, Chris Henderson, Mark Severy, Alicia Mahon, Joe Haxel, Mikaela Freeman, Debbie Rose, Cailene Gunn, Laura Nelson, Elise Boos, Alison Shereda, Marg Daly, Chris Rumple, Travis Douville, Simon Geerlofs, TJ Heibel

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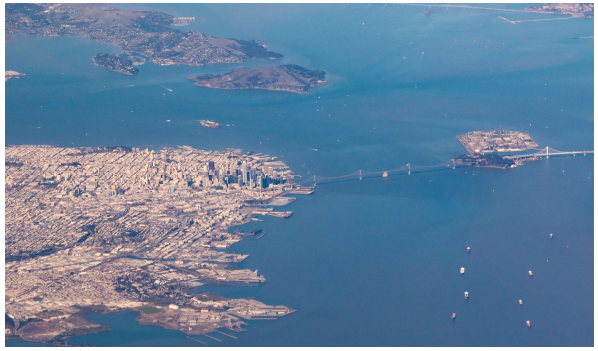
Many ocean uses



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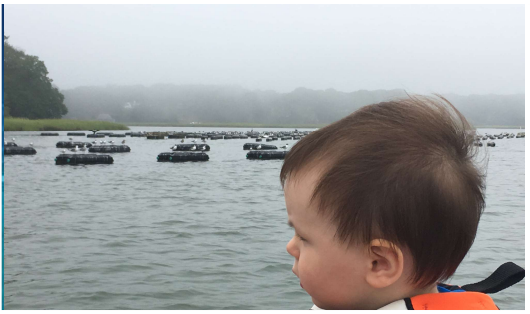
People

Environment



Carbon sequestration

Cultural identity

Food

Livelihoods

Coastal protection

Energy

Clean water

Recreation

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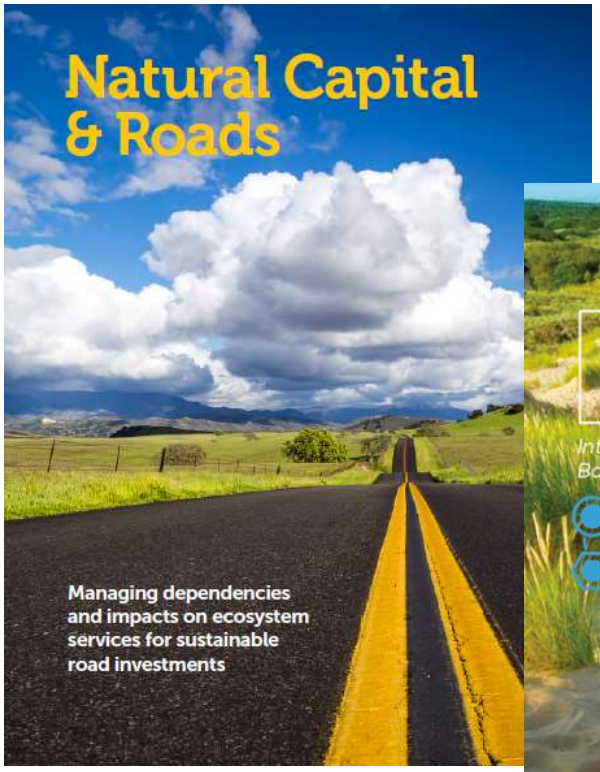
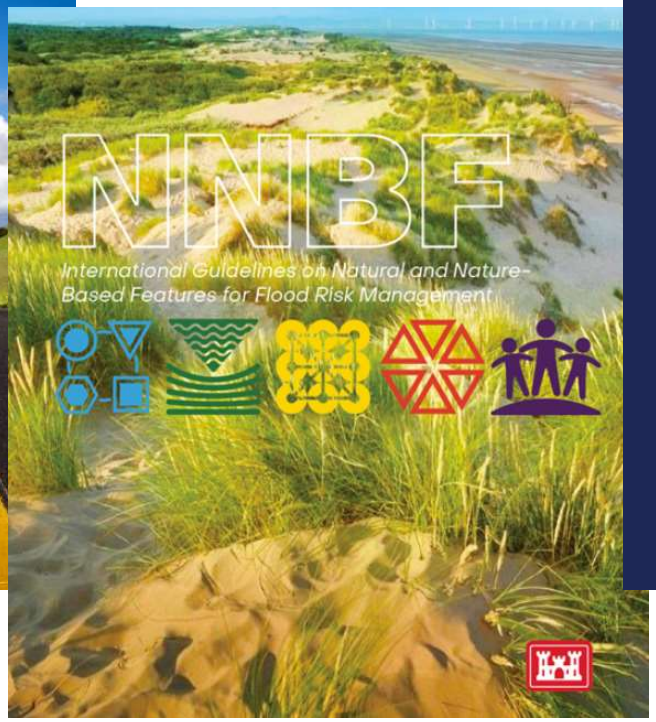
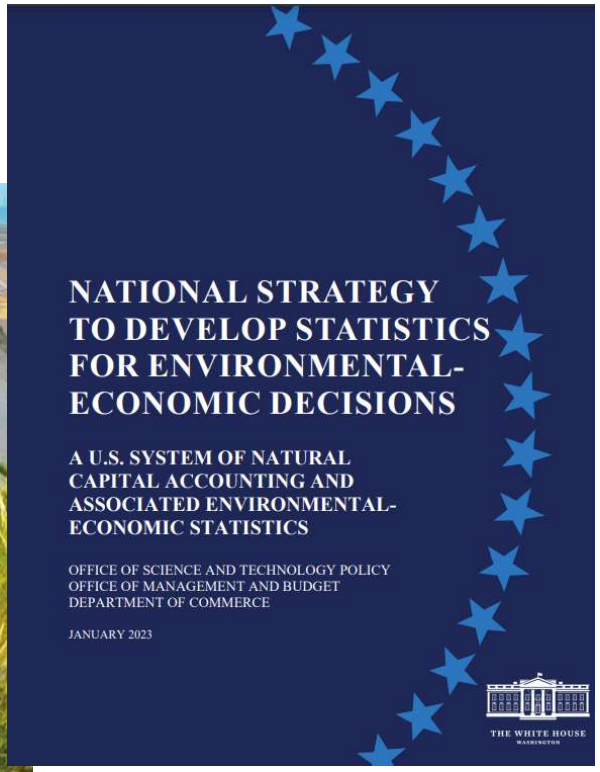
Mainstreaming natural capital into decision-making







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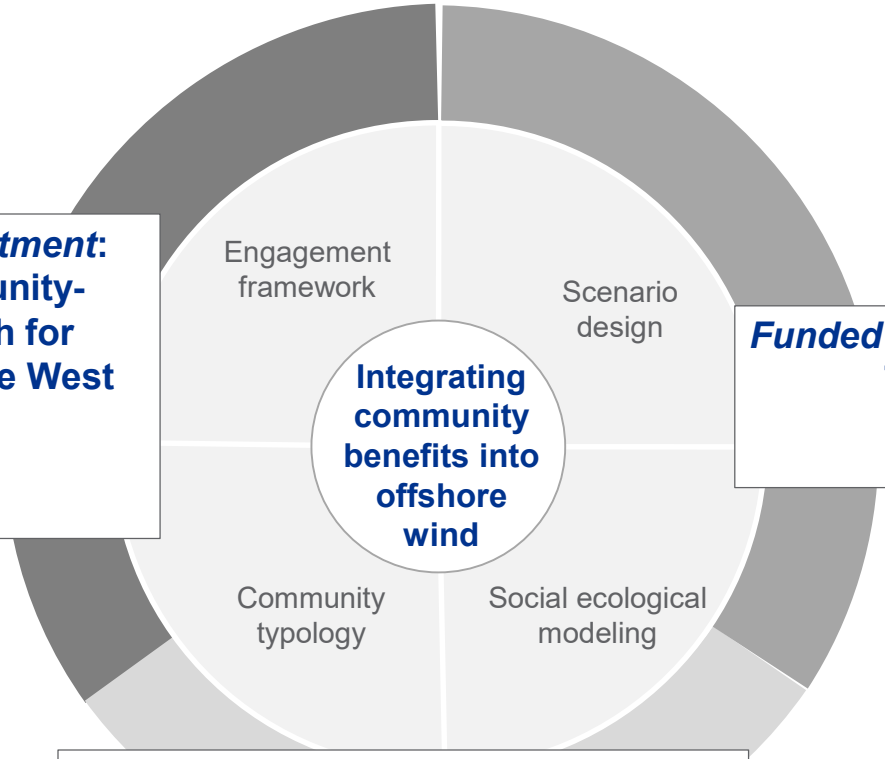
Natural capital approaches to sustainable development

- Social-ecological modeling
- Scenario design
- Participatory process

Natural capital approaches to offshore wind development



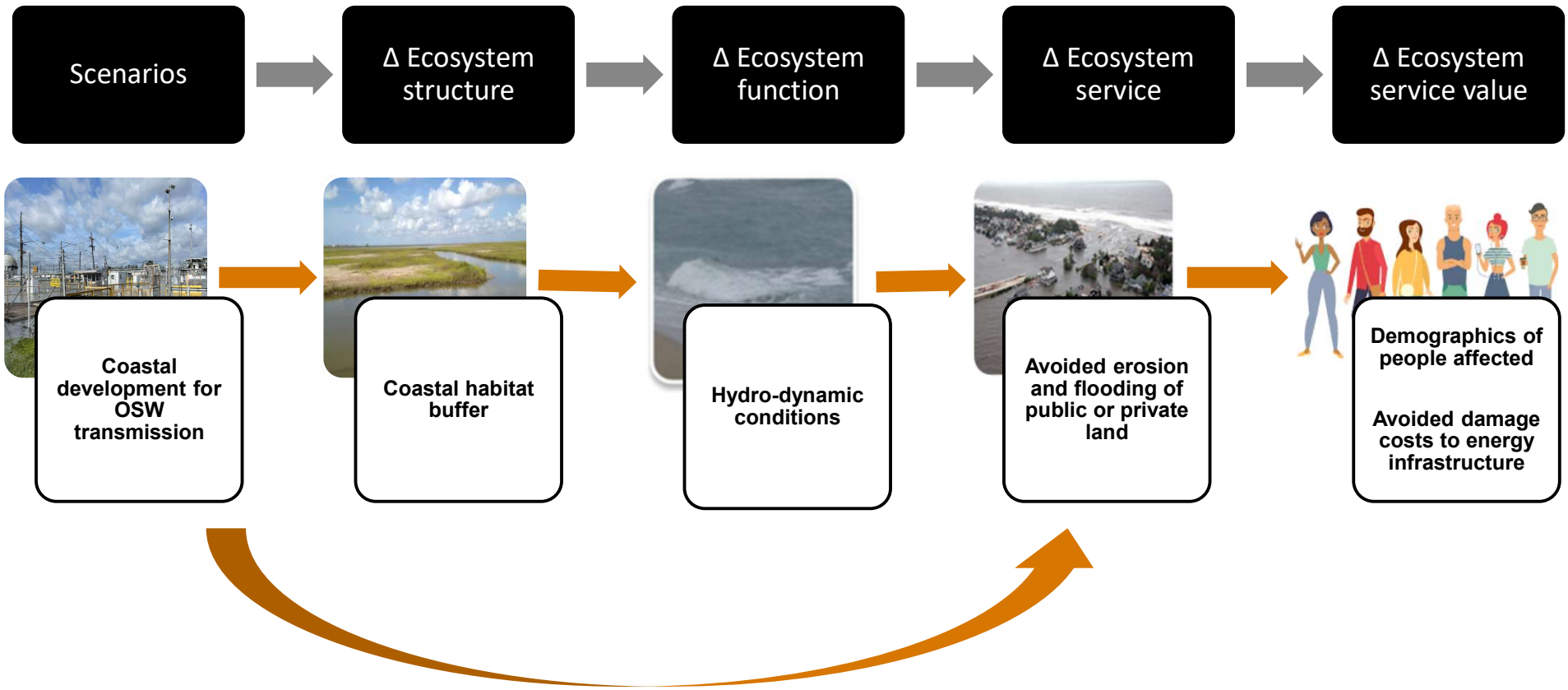
***Internal PNNL Investment*: Advancing Community-Engaged Research for Offshore Wind on the West Coast**
In Progress
FY23-24

***Funded*: West Coast Offshore Wind Transmission Study**
In Progress
FY23-24

***Funded*: Offshore wind communities and ocean co-use**
In Progress
FY23-24

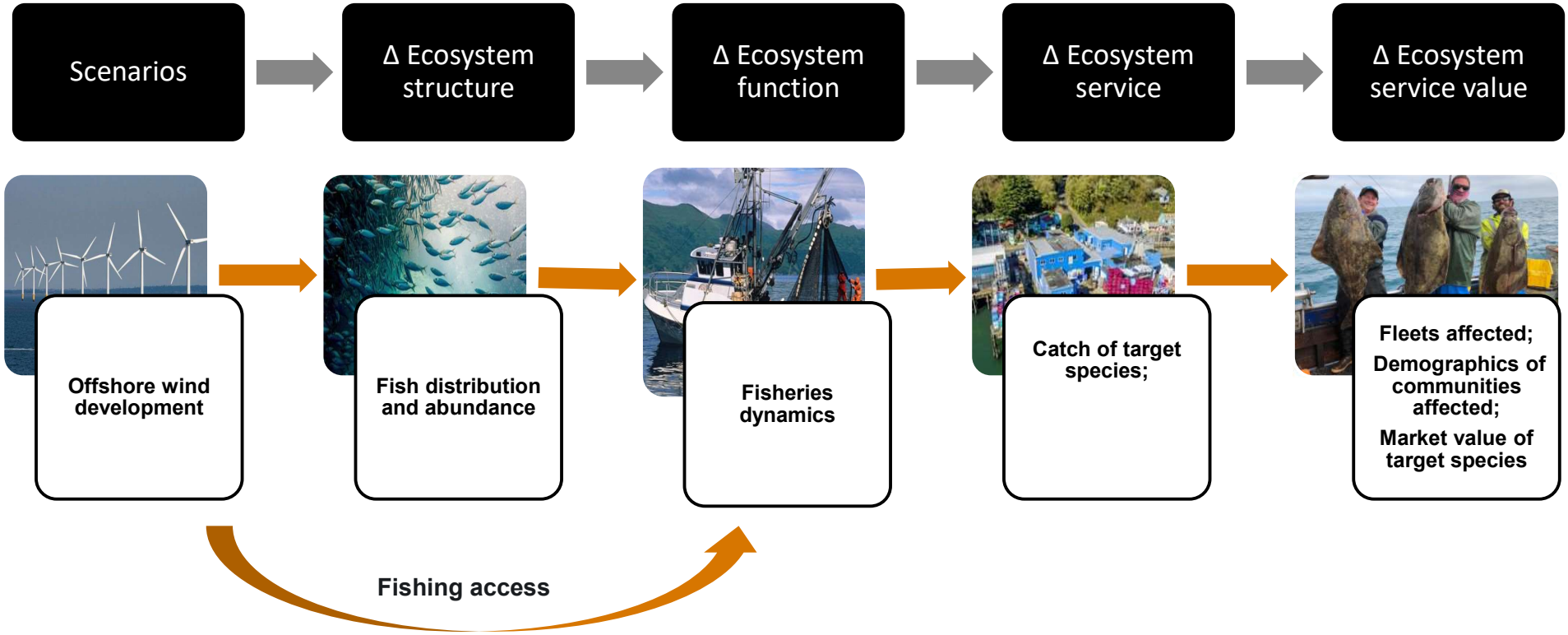
Social-ecological modeling

Social-ecological modeling – Coastal risk



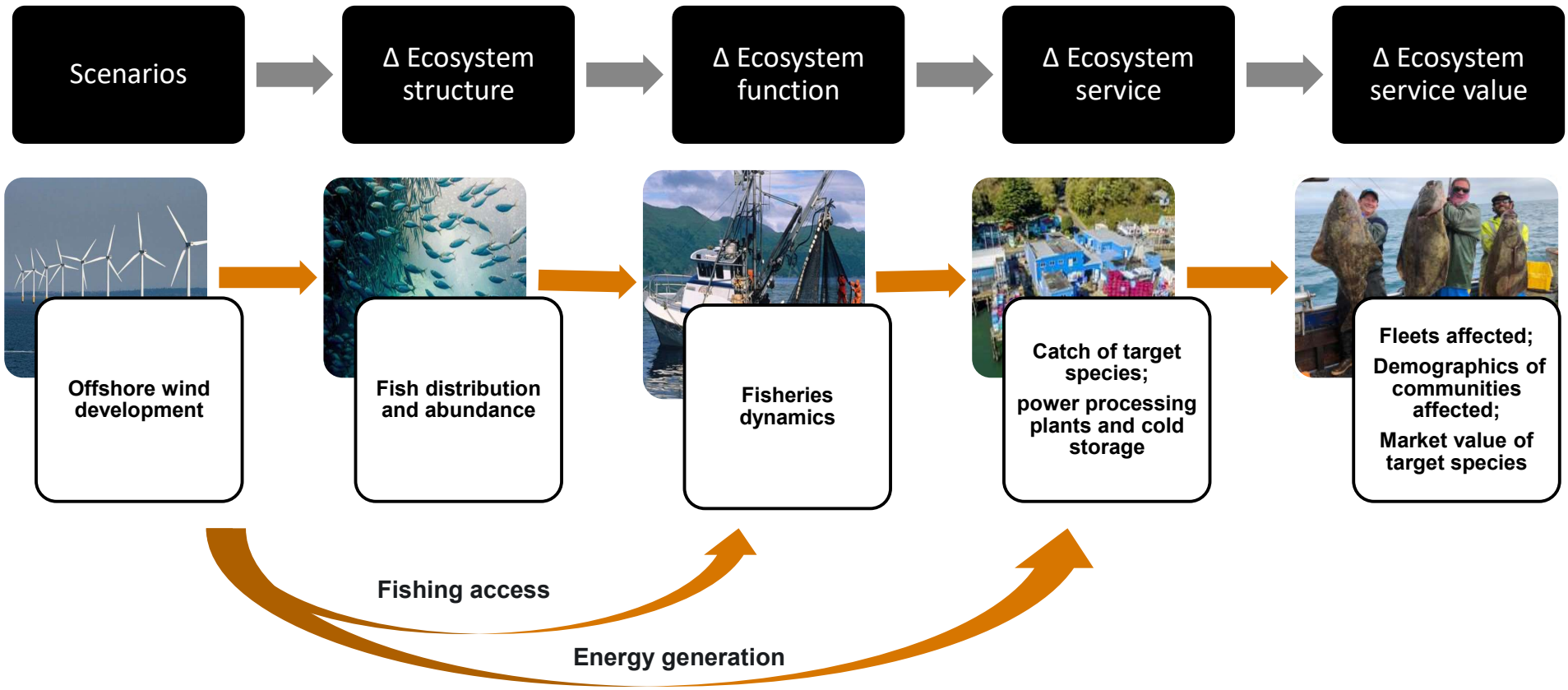
DRAFT conceptual model - adapted from Arkema et al. 2017

Social-ecological modeling - Fisheries



DRAFT conceptual model - Adapted from Arkema and Samhouri 2012

Social-ecological modeling - Fisheries



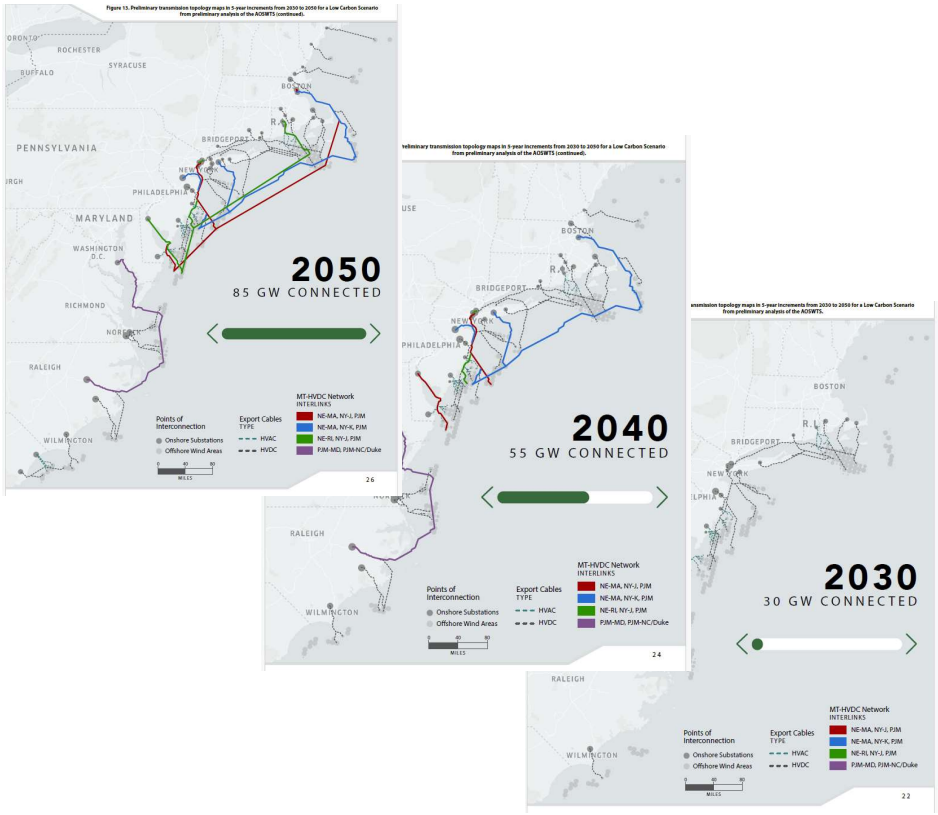
DRAFT conceptual model - Adapted from Arkema and Samhouri 2012

Scenario design

West Coast Offshore Wind Transmission Study

How do different transmission options for offshore wind influence:

- **Fisheries?**
- **Energy resilience?**
- **Viewshed and cultural landscapes?**
- **Recreational opportunities?**
- **Coastal risk to people and energy infrastructure?**



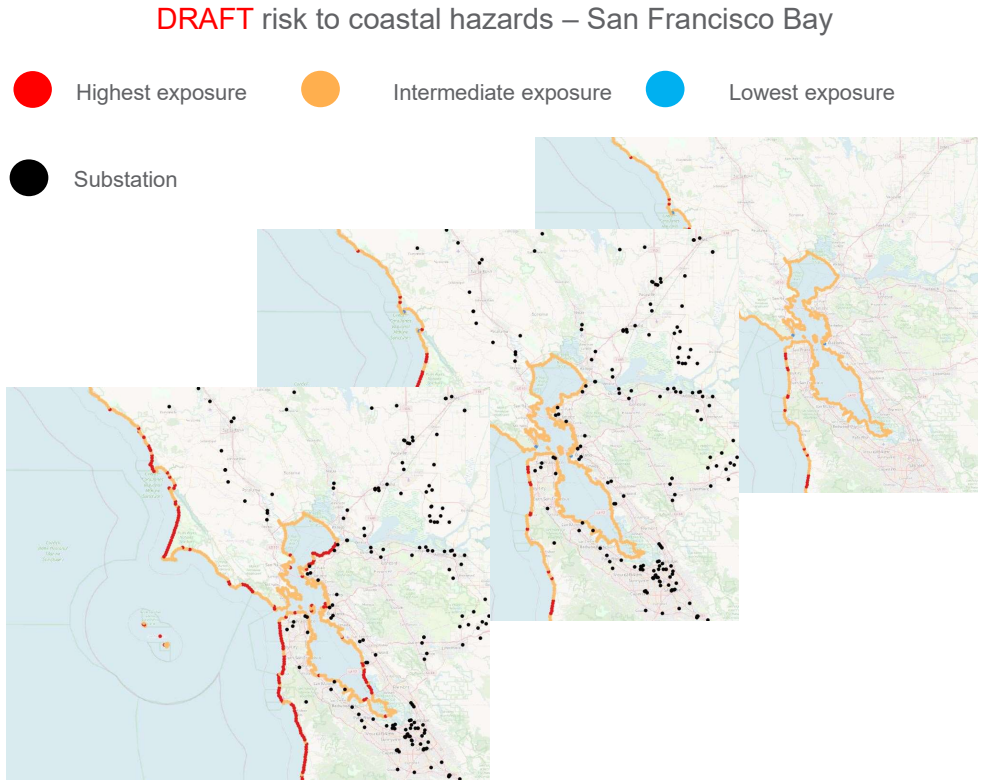
Example scenarios for east coast from Atlantic Offshore Wind Transmission Study

Scenario design

West Coast Offshore Wind Transmission Study

How do different transmission options for offshore wind influence:

- Fisheries?
- Energy resilience?
- Viewshed and cultural landscapes?
- Recreational opportunities?
- **Coastal risk to people and energy infrastructure?**



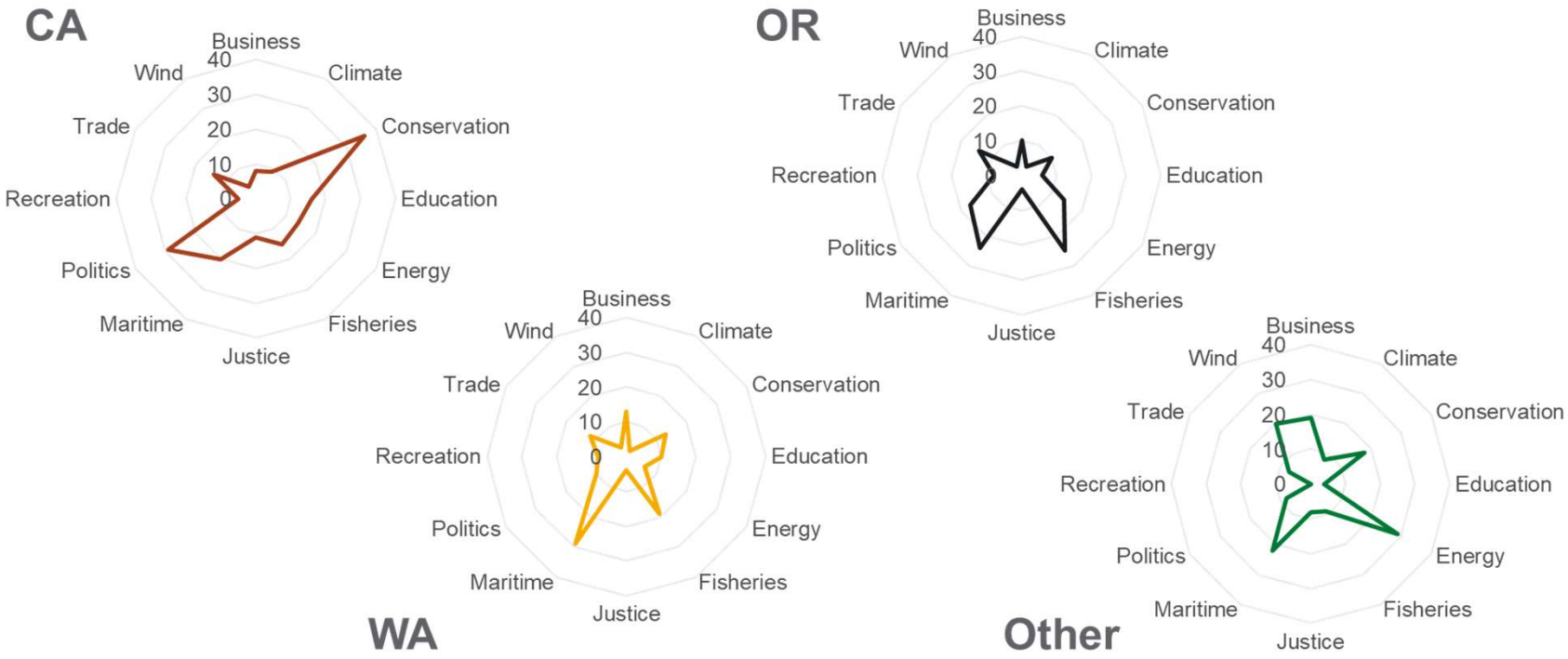
Based on methods in Arkema et al. 2013 Nature Climate Change

Participatory process – who is engaging and what do they care about?

Community Identification	Find public documentation of community engagement in West Coast OSW*
Attribute Development	Develop attributes to categorize and describe engaged communities
Targeted Web Searches	Search community websites for demographic and thematic information*
Data Entry	Generate data entry for each community with relevant attributes

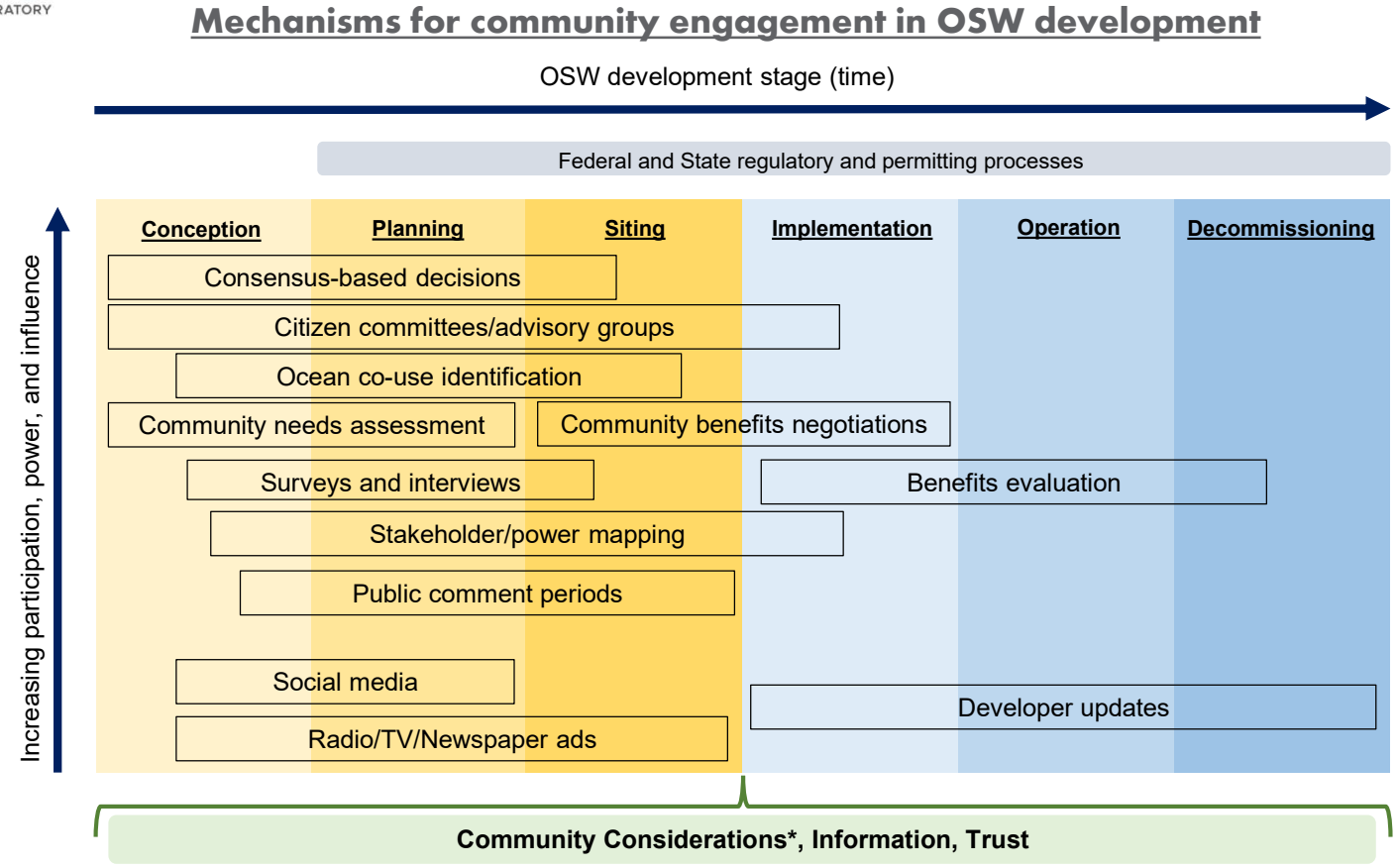
*Public information from existing OSW engagement and websites is limited and not representative, especially for the communities who do not have resources to engage in these ways.

Participatory process – who is engaging and what do they care about?



Duffy et al.

Participatory process – how to engage?



Henderson et al. in prep

* External Factors (E.g., demographics, place attachment, history)

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Take home messages

- Natural capital approaches to offshore wind involve **three key components**: social-ecological modeling, scenario design, and participatory processes.
- **Social-ecological modeling** can help to strengthen understanding of the relationships between coastal communities, ecosystems, and offshore wind development.
- Leverage natural capital approaches to **increase participation, power, and influence** of communities in offshore wind development.
- Natural capital approaches can help to shine a light on **community benefits** that need to be considered in offshore wind development.