Striking the right balance; how to improve the social outcomes of our future ocean goals?

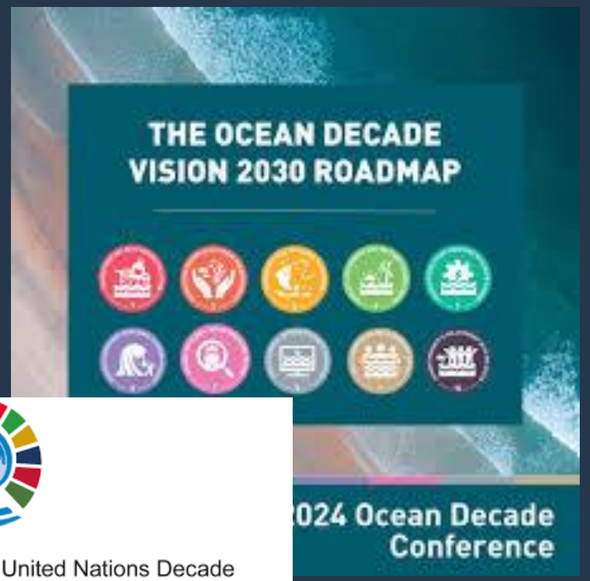
Rachel Seary

University of California, Santa Cruz
NOAA Southwest Fisheries Science Center

PICES Annual Meeting 2024

FUTURE Symposium

Unprecedented commitments to biodiversity conservation



2021 2030 United Nations Decade of Ocean Science for Sustainable Development

14 LIFE BELOW WATER

SDG 14 TARGETS:

14.1 By 2025, prevent and significantly reduce marine kinds

14.2 By 2020, sustainably manage and protect marine ecosystems to avoid significant adverse impacts

14.3 Minimize and address the impacts of ocean acidi through enhanced scientific cooperation at all levels

14.4: By 2020, effectively regulate harvesting and end illegal, unreported and unregulated fishing and destructive fishing practices

14.5: By 2020, conserve at least 10 per cent of coastal and marine areas

14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing

14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources

SUSTAINABLE DEVELOPMENT GOALS

NEREUS PROGRAM

SUSTAINABLE DEVELOPMENT GOALS

Kunming-Montreal GLOBAL BIODIVERSITY FRAMEWORK

Convention on Biological Diversity

CNN

More than 190 countries sign landmark agreement to halt the biodiversity crisis

More than 190 countries have adopted

United Nations' biodiversity conferenc

Dec 19, 2022

UNEP

COP15 ends with landmark

The United Nations Biodiversity Confer

19 December 2022 with a landmark agr

global...

Dec 20, 2022

The New York Times

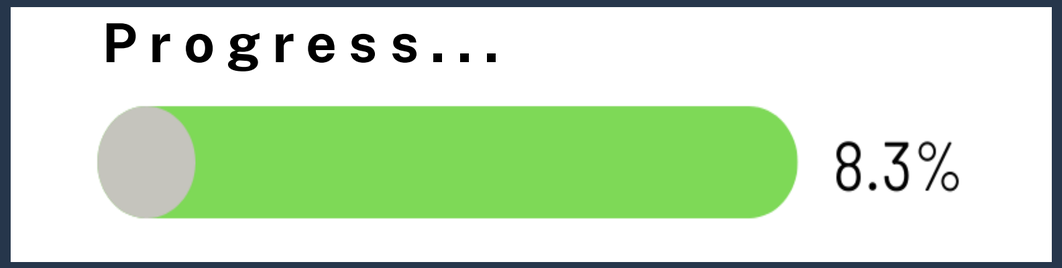
COP15 Biodiversity Talks: Countries Sign On to “30x30” Conservation Plan

MONTREAL, Quebec — Roughly 190 countries early on Monday approved a sweeping United Nations agreement to protect 30 percent of the planet's...

Dec 20, 2022

But ambitious goals require severe interventions

E.g. Most countries are well below the GBF 2030 targets:



- Substantial management changes ahead to close the gap
  - E.g. marine protected areas, new regulations on fisheries and other activities
- Potential consequences for coastal communities
- Socially focused goals are not always compatible
- Countries to balance environmental protection with societal needs as we move towards 2030 and beyond
- How can we do it well, at such a magnitude, in a short time frame?

RESEARCH

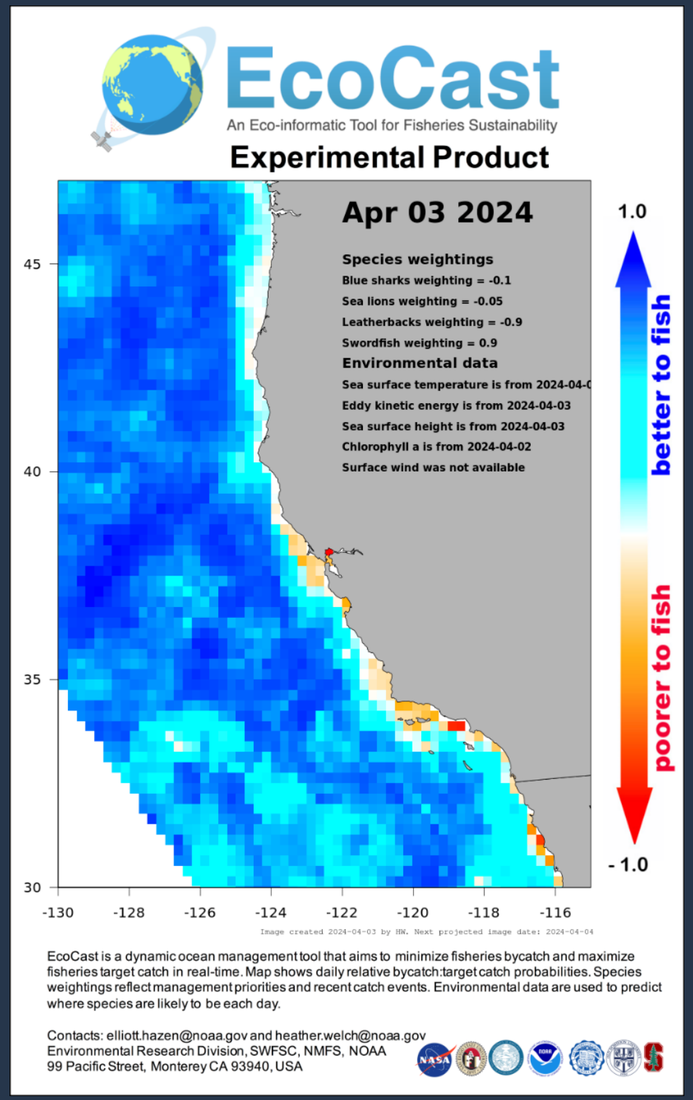
Exploring ways of integrating social considerations into strategies to meet ecological goals

Case Study:
The California Drift Gillnet Fishery

The problem: Too much bycatch of protected species and too little fishing opportunity

Can Dynamic Ocean Management tools help reduce bycatch AND improve fishing opportunities?

- Decision support tool developed by NOAA Environmental Research Division (Hazen et al., 2018)
- Remotely sensed environmental data and telemetry data on species distribution
- Daily probability of encountering target species and encountering bycatch species
- Optimize fishing catch and avoid bycatch of protected species
- Pre-requisite of Exempted Fishing Permit use



Project funded under NASA A.46 Earth Science Applications: Ecological Conservation Impact Assessment – Seary et al., "Assessing the efficacy and applicability of dynamic ocean management for the US West Coast"

https://coastwatch.pfeg.noaa.gov/ecocast/about.html

Research Question: Is it useful?

Session 7 – Thursday 5:20 PM
Can dynamic Ocean Management tools prove useful for a fishery set to disappear?

Approach: Science and policy partnership to evaluate the effectiveness of EcoCast


Rachel Seary, UCSC/NOAA


Steven Bograd, NOAA


Elliott Hazen, NOAA


Helen Bailey, Blue Wave Consulting (UK)


Rebecca Lewison, San Diego State University


Amber Rhode, NOAA Fisheries-West Coast Region


Emily Nazario, UCSC


Austin Sell, University of Washington


Dan Lawson, NOAA Protected Resources Division

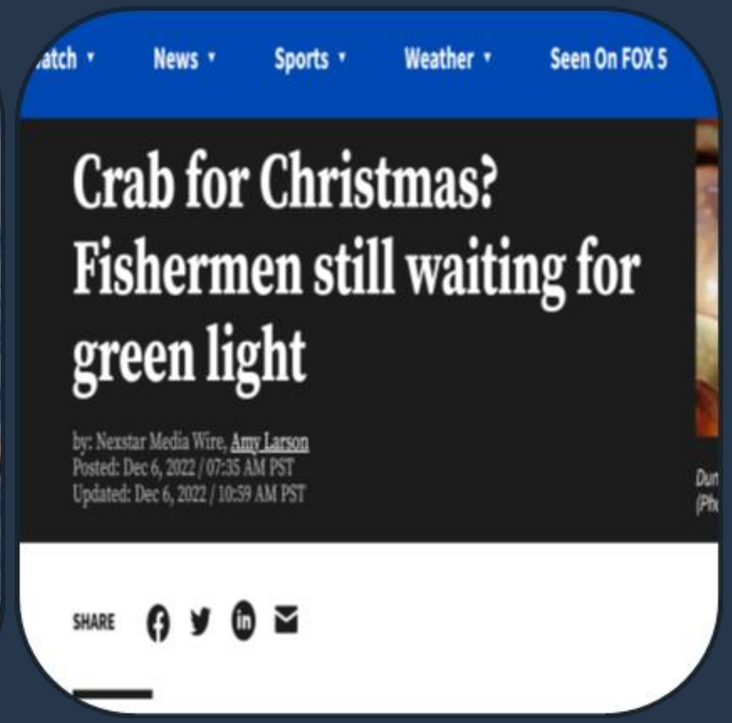
Method:
Program evaluation

- Systematic process of evaluating effectiveness of a program or policy
- Focus on end-user experience
- Stakeholder workshops
- Fishermen evaluate the tool on the water

Outcome:
To learn how these tools can work for fishermen and management

Case Study:
The California commercial Dungeness crab fishery

The problem: Whale entanglement and fishery closures to prevent it


atch ▾ News ▾ Sports ▾ Weather ▾ Seen On FOX 5

Crab for Christmas? Fishermen still waiting for green light

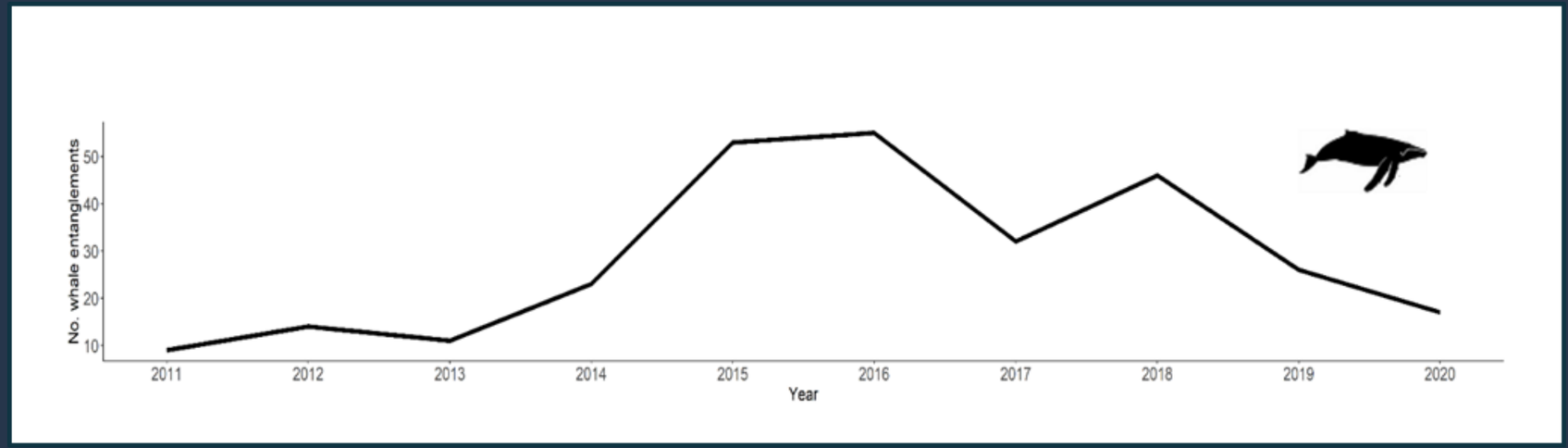
by: Nexstar Media Wire, Amy Larson
Posted: Dec 6, 2022 / 07:35 AM PST
Updated: Dec 6, 2022 / 10:59 AM PST

SHARE

Whale entanglements reduced through management

- The Risk Assessment Mitigation Program (RAMP):

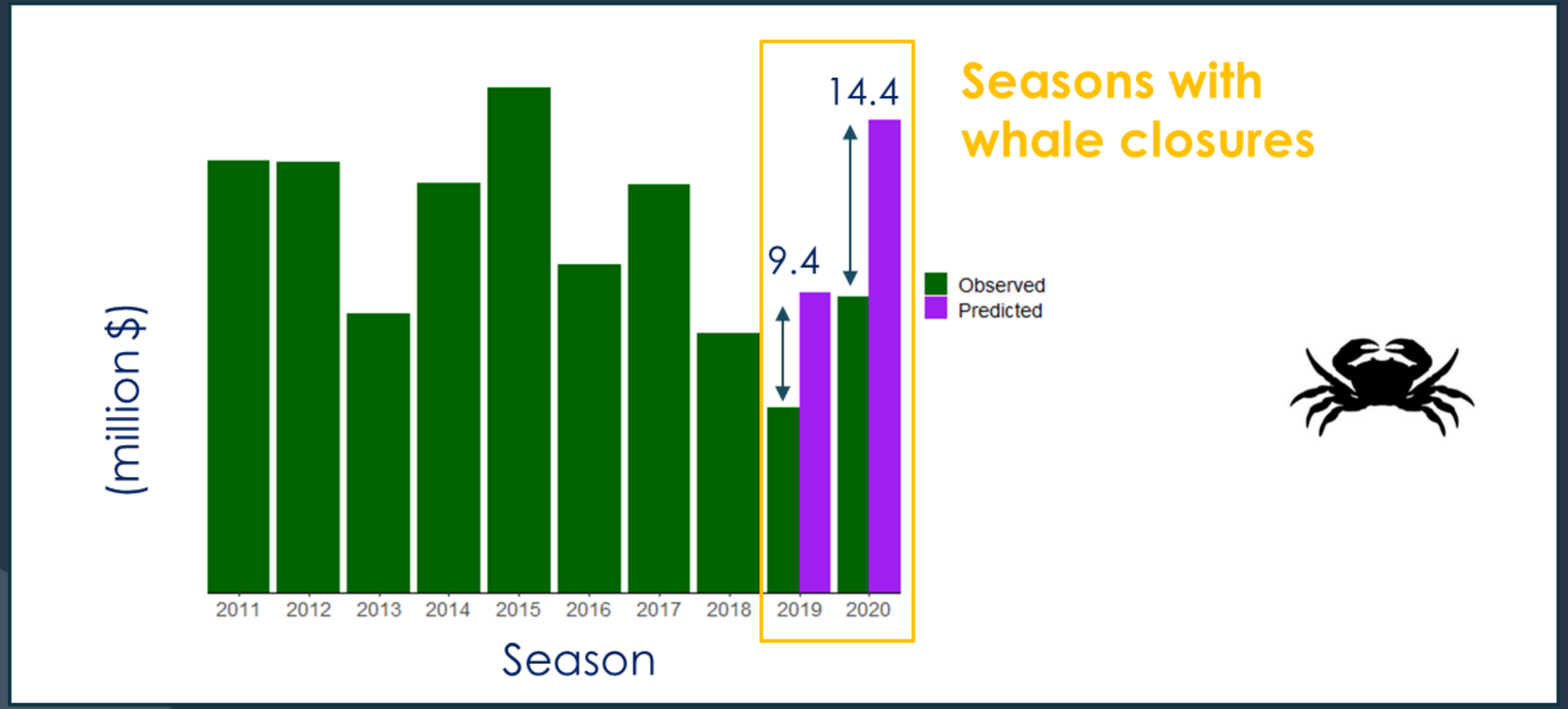
Ecological indicators → Risk assessed → Fishery open or closed



Reported whale entanglements over time

However, substantial losses to fishing revenues.

- Retrospective estimates of revenues during seasons with closure periods
- Estimated loss = Predicted revenue – Observed revenue



- Estimates useful for exposing the problem but not resolving it

Seary et al. (2022). Revenue losses due to whale entanglement mitigation and closures. *Scientific Reports*, 12 (21554).

FINDING SOLUTIONS
Social indicator development

- Fishing revenues don't show the whole picture
- Interviews with fishermen to understand individual experiences
- Developed > 300 social indicators
- Quantified to provide measurable indices
- Integrated into social and economic sustainability monitoring system
- The goal: Evaluate both ecological and social outcomes of management actions

Figure: Word cloud shows most common indicators described by fishermen.

Seary et al. *in prep*

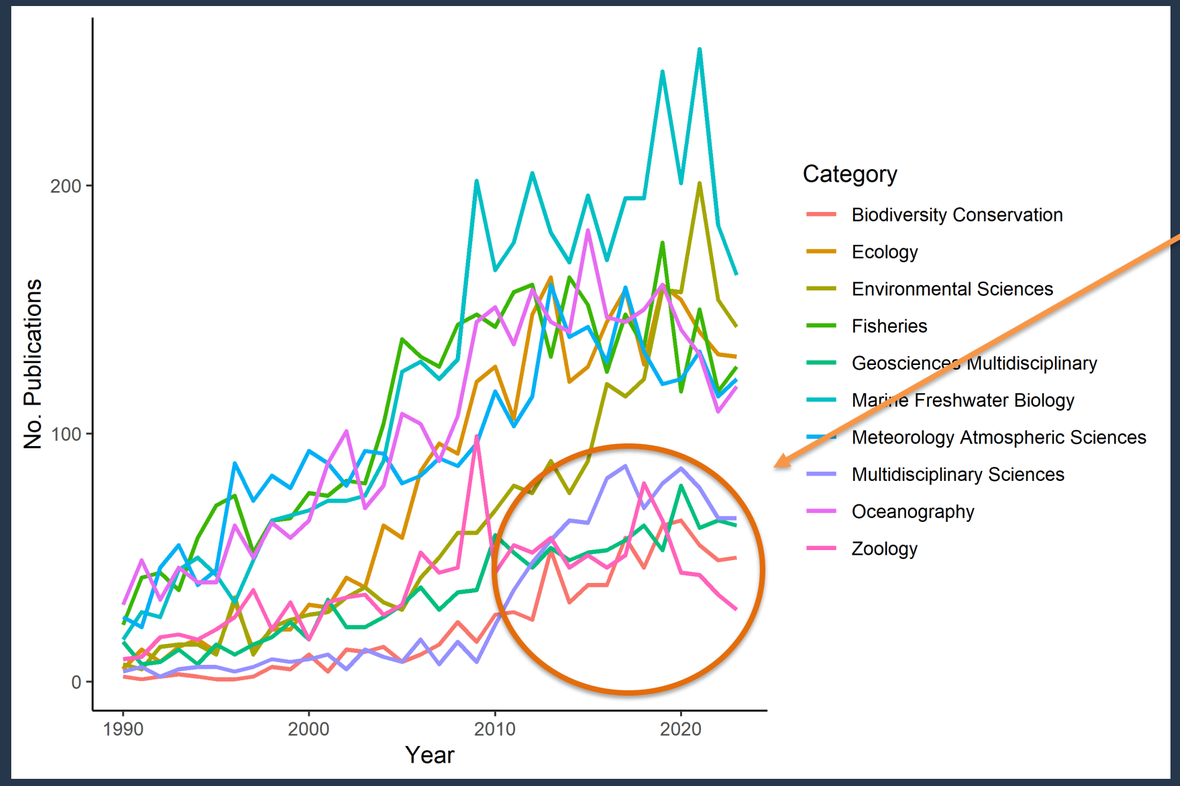
Session 7 – Thursday 4:40 PM
Alexis Hadinger
Balancing Marine Mammal Protection and Fisheries Sustainability: Social indicators in California's Dungeness Crab Fishery

The question we should keep asking:
How can strategies to meet our future oceans goals and agreements yield positive outcomes for coastal fishing communities?

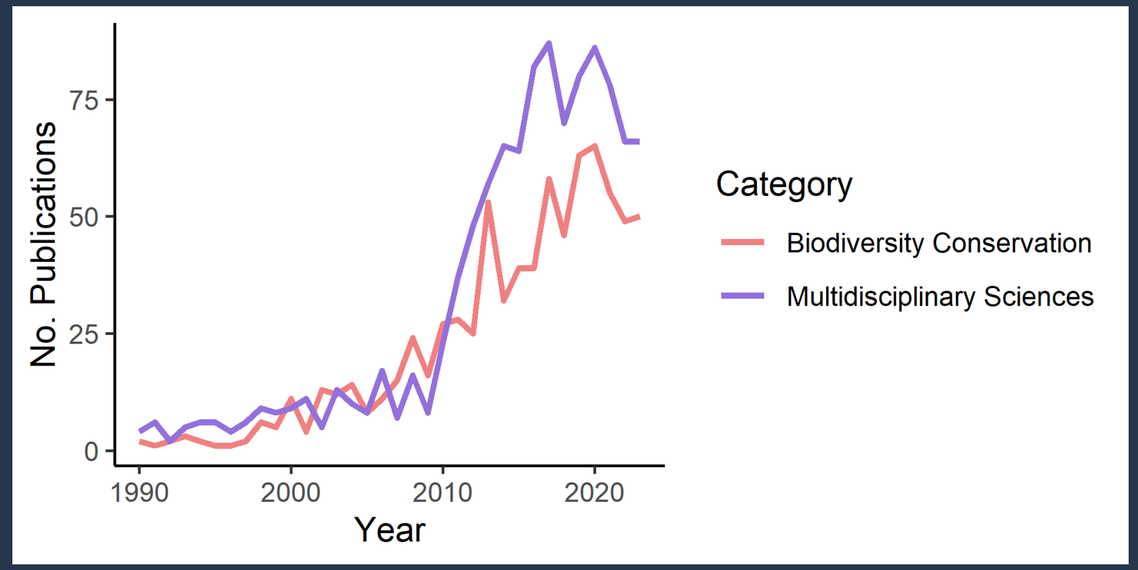
- Interdisciplinary collaborations
- A social-ecological systems approach
- Community engagement in the solutions

We're doing it!

Trends in ocean research topics by US federal agencies:



Working Group 51 - Analysis of WoS Publications by PICES member countries (Takemura et al in prep!)



- Keywords on the rise in abstracts: "Dynamic", "Community", "Management", "Ecosystem"

Thanks!

Rachel Seary

Contact: rachel.seary@noaa.gov