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NEW RESEARCH ON WHETHER FLEXIBLE FISHING PERMITS CAN LESSEN CLIMATE STRESS ON CALIFORNIA FISHERIES

INTRODUCTION

Recent extreme events caused by a confluence of climate-driven ocean changes are threatening marine ecosystems and fishing communities on the West Coast. For example, the California Dungeness crab fishery, one of the most valuable in the state, has in recent years endured sudden delays and closures due to warming ocean temperatures, bouts of domoic acid contamination, and increased fishing vessel interactions with whales as their feeding and migration patterns change.

As a result, there is growing interest among communities, stakeholders, and state fisheries managers in developing proactive ways to cope with unpredictable phenomena. The Lenfest Ocean Program is funding Dr. James Sanchirico and Dr. Matt Reimer, both of University of California, Davis, to explore whether flexible fishing permits could help reduce the impacts of a changing climate on state and federal fisheries in California while also maintaining safeguards that promote ecosystem health.

THE NEED FOR PROACTIVE APPROACHES TO EXTREME EVENTS AND CLIMATE-DRIVEN FISHERIES SHIFTS

Managers can respond to extreme events primarily by declaring a fishery disaster, which then triggers financial relief for fishermen and their communities. However, relief is only provided long after the event has occurred. In addition, as ocean chemistry continues to change, such events are expected to increase in frequency, severity, and/or duration, and many fished species are shifting to new geographic locations in search of more suitable habitats. Managers need additional tools to mitigate and adapt to these myriad impacts.

LEAD RESEARCHERS

- Dr. James Sanchirico, Professor, University of California, Davis
- Dr. Matt Reimer, Associate Professor, University of California, Davis
- Jessica Kauzer, Science Officer, California Ocean Science Trust
- Anthony Rogers, Strategy Director, California Ocean Science Trust

In 2019, the California Ocean Science Trust convened state fisheries managers and stakeholders in a workshop to explore new approaches to fisheries management in the face of climate change. One suggestion that emerged was a flexible fishery permit system. Currently, the California Fish & Game Commission manages the state's commercial fisheries through a limited entry policy, which restricts access to a fishery. Flexible fishery permits could help lessen the impacts of emergency closures or unanticipated shifts in species distributions by providing rules that allow fishermen to adapt in real time. However, little is known about the efficacy of permit flexibility in real-world contexts, including how best to integrate such a system with existing fishery policy and ecosystem conservation efforts.

RESEARCH APPROACH

To conduct this project, Drs. Sanchirico and Reimer will team up with California Ocean Science Trust to explore flexible fishing permits with the dual goals of developing permit flexibility design options and evaluating different options for state and federal fisheries in California.

The research team will conduct a literature review and gather information about flexible permit systems in other fisheries around the world and natural resource management contexts to understand design options across four key dimensions:

- Flexibility mechanisms in permit designs
- Types of climate-induced disruptions to marine ecosystems
- Current regulated access fishery management system in California
- Status of state and federal fishery participation and infrastructure in California ports

The team will also seek information on specific climate challenges in California that a flexible permit system could address, including any tradeoffs between economic and ecosystem health. The team will then assemble a range of flexible permit design options under different climate scenarios across location, gear type, target species, and length of time.

Engaging Managers and Stakeholders

The research team will seek guidance from managers and stakeholders throughout the project, holding interviews and focus groups, and convening workshops at key points in the project. This engagement will be critical to tailoring the flexible permit design options to California state and federal fisheries, including the relevant time (within and across fishing seasons) and location (in the California Current, statewide, or in specified areas of the state).

Towards a Predictive Behavioral Model

There is growing interest in modeling the potential behavior of fishermen in response to various permit design schemes and associated impacts. While outside the scope of this project, the research team will examine existing state and federal fisheries data to assess whether such modeling is necessary and feasible.

Ultimately, the team will present to state and federal fisheries managers and stakeholders their findings on a range of flexible fishing permit options. The project started on July 1, 2020 and will span three years.

CONTACT

For questions, please contact Emily Knight, Manager, Lenfest Ocean Program, at eknight@lenfestocean.org.

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