

Accelerating a Transition to a Low-Carbon Fishing Fleet: Identifying Opportunities, Assessing Barriers, and Designing Supportive Public Programs

The urgency of climate change and record-high diesel fuel prices are motivating commercial fishermen to sketch out the contours of a low-carbon future. But significant technological and financial barriers lie in the way. In this work, we will assess these barriers and ask: what kind of targeted public programs and policies are needed to spur bottom-up, locally appropriate innovation and put the fleet on track to a low-carbon future?

Why this work, and why now?

Fishing vessels are directly impacted by ocean acidification and climate change, but they remain dependent on diesel to power their vessels' propulsion, refrigeration, deck gear, and electronics systems. At a moment when U.S. federal and state governments are adopting ambitious decarbonization goals and putting in place a bevy of new programs to reach these goals, our aim is to ensure that this climate-impacted yet hard-to-decarbonize sector is not left behind.

The U.S. commercial fishing fleet is diverse, and there is no single easy answer when it comes envisioning what fishing vessel energy use will look like in a carbon-constrained world. Around the coasts, some fishermen and organizations are beginning to pilot advanced technological innovations, such as electric propulsion. Others are focused on reducing fuel consumption in conventional engine setups through broader adoption of proven efficiency measures. Both approaches would benefit from supportive public programs. But so far, there has been no concerted effort to outline the full spectrum of opportunities, identify barriers to leveraging these opportunities, or advocate for public programs that can help overcome these barriers. That's where this research project comes in.

Research plan

Key informant interviews (timeline: January – June 2023). The research team is holding conversations with equipment manufacturers, vessel system integrators, decarbonization leaders in adjacent maritime industries, port managers, policy makers, and other experts. The purpose of these conversations is to understand how the broader landscape of innovation and policy making shapes the context for accelerating a transition to a low-carbon fishing fleet.

Vessel owner interviews (timeline: February – June 2023). Interviews will be conducted with vessel owners in three target regions: Alaska, the West Coast, and New England. The interview will gather information from vessel owners about current and anticipated adoption of energy efficiency technologies, electric drive systems, and alternative liquid or gaseous fuels on their vessels. It will also elicit information about how well existing public programs may be meeting the fleet's emissions-reduction needs and how new programs could be designed to fill the gaps.

The interview will be enumerated by a member of the research team and can be completed wither virtually or in-person. Respondents will receive a small financial incentive to participate and a T-shirt with the slogan "I support climate action led by people in boots, not people in suits." The number of respondents may be capped by state, region, or fleet, in accordance with the availability of funding and the goal of achieving balance among respondents.

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Analysis of existing programs and program gaps (timeline: February – August 2023). The research team is compiling information on existing state and federal emissions-related incentives programs, such as the EPA’s Diesel Emissions Reduction Program, the USDA’s Rural Energy for America Program, and California’s Carl Moyer Memorial Air Quality Standards Attainment Program. Although many existing programs focus on local air quality pollutants (such as particulate matter and oxides of nitrogen) rather than greenhouse gasses like carbon dioxide, there are important overlaps and lessons that can be learned from these programs.

Who is leading this effort?

This project is led by a fishermen-led steering committee and a quartet of researchers with ties to the fishing industry:

- Sarah Schumann, Shining Sea Fisheries Consulting (research lead)
- Noah Oppenheim, Homarus Strategies (policy lead)
- Chandler Kemp, Kempy Energetics (technical lead)
- Erika de la Rosa, National Working Waterfront intern (research assistant)

The team came together through the Fishery Friendly Climate Action campaign, a grassroots initiative that provides fishermen, fisheries associations, and seafood businesses with tools, networking, access, and knowledge to advocate for robust climate solutions that work *for* U.S. fisheries and not at their expense. Reports from this research will be published and disseminated to policy makers by a cohort of fishery trade associations.

How you can help ensure this research meets the needs of the fleet:

Vessel owners: Sign up for an interview! If you are a vessel owner in one of the target regions, you can help advance this research by taking the vessel owner interview. Interview opportunities will become available starting in late February 2023. To sign up for an interview, contact the research team.

Trade associations: If you are a trade association representing vessel owners, you can help by:

- Participating in a key informant interview;
- Connecting us with your member vessel owners to participate in an interview;
- Sponsoring the project by contributing funds to help your members participate;
- Reviewing draft reports and signing on as a co-publisher (your organization name and logo will be credited as a lead partner or supporting partner, depending on your level of involvement).

If you are interested in any of these roles, please reach out to the research team.

Funders: Help support this work! If you are a funder, please contact the research team to find out how you can help expand this project’s reach. Due to the project’s urgency, it has been pieced together on a shoe-string budget. As more funding becomes available, we hope to expand the number of ports, states, vessel owners, and fishing associations who can be involved in the work. If you are interested in helping to support this important work financially, please reach out to the research team.

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