

Creation of a "Data Trust" for Effective Inclusion of Fishermen's Knowledge in Offshore Wind Energy Decision Making

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Project Team

- NYSERDA Project Manager: Morgan Brunbauer
- Responsible Offshore Development Alliance (RODA)
 - Principle Investigator
 - Provided knowledge of fisheries, fishery dependent data, and offshore wind
- Square Thread
 - Provided project management skills, database knowledge
- Analysts
 - Provided knowledge of coding, database building and processing
- Fishing Industry Members
 - Provided time and knowledge of their fishing operations and data
 - Participated on the Project Advisory Committee and Advisory & Review Panel



- Fishing Industry see a gap in understanding by fisheries scientists and managers of the current status and dynamics of fisheries
- Cultural natures help drive the gap
- Individual fishing business data is unstandardized and confidential
- Government-run data collection systems lack high resolution position, time, and catch economic data
- Fishing industry has in-depth empirical knowledge of the ecology and human social dimensions
- The Fishery Knowledge Trust provides a solution



Background on the Fisheries Knowledge Trust

- Early Concept Explored via NOAA Grant Around Key Problem: Trusted ٠ **Collaboration Between Industry and Science Community**
- Began Discussions with RODA About Need for Trust in Offshore Wind ۲
- Fisheries Knowledge Trust Launched in Conjunction with RODA in 2020 ٠ Funded by NYSERDA Grant to Build "Proof of Concept"
- Core Focus Was Understanding Wind Impacts on Fisheries Off New York Bight ۲
- Built Infrastructure and Currently Conducting Two Pilots with Herring and Clam ٠ Fleets



Concept: Using Industry Knowledge to Advance Best Available Science

A secure, scalable engine for turning fishermen's insights and fishing data into trusted scientificallydefensible products

5 Design Principles for Trust



Confidential information



Concept: How the Trust Works

A combination of technology and governance allows fishermen and analysts to collaborate effectively





Concept: How Products Are Created in the Trust

Data are processed, cleaned and readied for analyses by the Trust with your input. These data are then made available to specifically-named analysts and only with your approval



FISHERMEN NEVER LOSE CONTROL OVER THEIR DATA



Project Activities



- Common Standards
- Data Management and Governance
- Scientific Research Projects



Pilots: Goal = Test and Inform Design of the Trust

Infrastructure was developed alongside two pilots with members of the clam and herring fleets.

Research Question:

- 1. Can the Trust successfully aggregate, validate, and integrate proprietary fleet level data and knowledge and create basic, transparent analytical products?
- 1. What is the scale of the likely financial and harvest impacts that the proposed and existing Wind Planning and Lease Area (WPLAs) would have on historical fishing activity?

Table 19. Key Success Criteria for Trust Pilot Projects

Assumption	Criteria
Motivation	On-water stakeholders are willing to share confidential federally reported data with the Trust
Motivation	On-water stakeholders are willing to share qualitative data (e.g., surveys) with the Trust
Motivation	On-water stakeholders are willing to work with researchers to inform proper interpretation of the data.
Capability	The data necessary to complete the analysis existed in a structured format
Capability	The data could be accessed and collected in a scalable way from the source
Capability	The data could be standardized and aggregated into a standard format.
Capability	The data could be analyzed in a way that met the confidentiality requirements of the on-water
Capability	The data could be analyzed in a way that provided the necessary documentation to
Impact	Stakeholders in the Wind Energy industry trust the credibility of methods used and data collected in the analysis.
Impact	Stakeholders in the on-water community view the products as valuable

Pilots: 2 Fleets in Mid Atlantic

Infrastructure was developed alongside two pilots with members of the clam and herring fleets.

		Herring Fleet	Clam Fleet		
	Size of fleet in analysis	10 vessels	90+ vessels	Figure 1. Wind Leas	
	Species	Herring and Mackerel	Ocean Quahogs, Surf Clams		
	Geo	NJ, NY, NE	NJ, NY, NE		
	Types of data	Historical VMS data (15+ years) Historical landings data (15+ years) Observer data Structured interviews with fleet	Historical VMS data (15+ years) Historical landings data (15+ years) Structured interviews with fleet		

igure 1. Wind Lease and Planning Areas Included in Analysis





Step 1: Recruit Fishermen to Participate



Step 2: Onboard Fishermen and Data Models



Step 3: Request and Process Data



Step 4: Manage Data and Grant Access



Step 5: Develop Initial Products



Step 6: Review with Advisory & Review Panel



Eventually will migrate code to github

Step 7: Final Approval and Delivery



Are the assumptions we made in the analysis correct?



Are you onboard with the final published products?



Final Report



Lessons Learned for the Greater Community

Table 19. Key Success Criteria for Trust Pilot Projects

1	Aggregated fishery data is in need Access		Assumption		Criteria
1.	to trusted, granular fishery dependent data is a major barrier to management of OWED and other marine conflicts	•	Motivation		On-water stakeholders are willing to share confidential federally reported data with the Trust
			Motivation		On-water stakeholders are willing to share qualitative data (e.g., surveys) with the Trust
			Motivation		On-water stakeholders are willing to work with researchers to inform proper interpretation of the data.
1.	Standardization is a HUGE problem . Basic lack of standardization in the way FDD is stored and processed makes aggregating extremely difficult.	•	Capability		The data necessary to complete the analysis existed in a structured format
			Capability		The data could be accessed and collected in a scalable way from the source
			Capability		The data could be standardized and aggregated into a standard format.
			Capability		The data could be analyzed in a way that met the confidentiality requirements of the on-water
1.	Trust is built, not solved . Fishermen were willing to share data because they trusted the people involved. Technology scales trust, it doesn't create it.	<	Capability		The data could be analyzed in a way that provided the necessary documentation to
			Impact		Stakeholders in the Wind Energy industry trust the credibility of methods used and data collected in the analysis.
			Impact		Stakeholders in the on-water community view the products as valuable

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Confidential information



Benefits of the Trust

The trust helps the science, fishing and regulatory communities improve the best available marine science through faster, more trusted cooperative research.



How the Trust Can Improve Best Available Science

- **1. Faster Access to Industry Knowledge** Crowd-sourced industry knowledge that go beyond government data.
- Increase Trust in Industry-Led Science
 Peer-review and governance process
 ensures data and analysis meet standards
- **1. Reduce Cost of Industry Research** Reuse of data and code reduces marginal cost of conducting research.



Opportunities Moving Forward

The trust is looking to identify a select group of projects to collaborate with over the next 6-18 months.

What Types of Projects Can The Trust Support?

- 1. Research That Requires More Granular FDD (Upon Fishery Consent)
- 2. Research That Requires Non-Federally Collected Data
- 3. Recurrent Projects

How Does the Trust Prioritize Projects?

- 1. Scope and Impact of Proposed Study
- 2. Type of Data Needed (federally collected or bespoke)
- 3. Breadth of Fleet (number of stakeholders in project)



List of Presentations

- 2020 Fishing Operations and Offshore Wind Research Workshop hosted by NEFSC
- 2022 Offshore Wind and Fishing Operations Workshop hosted by NEFSC
- International Council for the Exploration of the Seas Annual Science Conference 2022





THANK YOU

On behalf of the Fisheries Knowledge Trust To NYSERDA And Fishing Industry Participants

