ROSA Advisory Council Meeting
December 19, 2022
9:30 Welcome, Introductions, Agenda Review
9:40 Researcher Updates
   Responsible Offshore Development Alliance (RODA) - Fiona Hogan, RODA
   Coonamessett Farm Foundation – Tasha O’Hara & Ron Smolowitz, CFF
   Rutgers cooperative clam research - Daphne Munroe, Rutgers University & Tom Dameron, Overboard Solutions, LLC
10:35 State Updates
   Maine Update – Casey Yanos, ME DMR
   New Jersey Update – Colleen Brust, NJ DEP
11:10 Federal Updates
   NOAA Fisheries Update – Doug Christel, GARFO
   Sea Grant Update – Jennifer McCann, RI Sea Grant & Gayle Zydlewski, ME Sea Grant
11:40 ROSA Updates
   Status of new website, research priorities data base
   Staffing Update
11:55 Summary of Meeting Outcomes and Next Steps
12:00 Adjourn
Fisheries Knowledge Trust

Annie Hawkins, Fiona Hogan

Responsible Offshore Development Alliance (RODA)

Steven Jacobs

SquareThread
Background

- Fishing Industry see a gap in understanding by fisheries scientists and managers of the current status and dynamics of fisheries
- Cultural natures, historic relationships, and experience of fleet 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
Concept: Using Industry Knowledge to Advance Best Available Science

A secure, scalable engine for turning fishermen’s insights and fishing data into trusted scientifically-defensible products

5 Design Principles for Trust

- **Persistent Ownership of Information** → No Control, No Data
- **Scientific Objectivity** → No Objectivity, No Impact
- **Common Standards** → No Standards, No Efficiency
- **Transparent Reproducibility** → No Transparency, No Trust
- **Trusted Collaboration** → No Collaboration, No Buy In
Concept: How the Trust Works

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

3 COMPONENTS TO KNOWLEDGE TRUST

- Scientific Research
- Data Aggregation & Management
- Common Standards
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.

1. Fishermen add raw data
2. Trust cleans data
3. Trust executes request
4. Approved analysts develop products
5. Peer review cert
6. Remove permissions
7. Deliver products

FISHERMEN NEVER LOSE CONTROL OVER THEIR DATA
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>
<thead>
<tr>
<th>Table 19. Key Success Criteria for Trust Pilot Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assumption</strong></td>
</tr>
<tr>
<td>Motivation</td>
</tr>
<tr>
<td>Motivation</td>
</tr>
<tr>
<td>Motivation</td>
</tr>
<tr>
<td>Capability</td>
</tr>
<tr>
<td>Capability</td>
</tr>
<tr>
<td>Capability</td>
</tr>
<tr>
<td>Capability</td>
</tr>
<tr>
<td>Capability</td>
</tr>
<tr>
<td>Impact</td>
</tr>
<tr>
<td>Impact</td>
</tr>
</tbody>
</table>
## Pilots: 2 Fleets in Mid Atlantic

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

<table>
<thead>
<tr>
<th></th>
<th>Herring Fleet</th>
<th>Clam Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of fleet in analysis</td>
<td>20+ vessels</td>
<td>90+ vessels</td>
</tr>
<tr>
<td>Species</td>
<td>Herring and Mackerel</td>
<td>Ocean Quahogs, Surf Clams</td>
</tr>
<tr>
<td>Geo</td>
<td>NJ, NY, NE</td>
<td>NJ, NY, NE</td>
</tr>
<tr>
<td>Types of data</td>
<td>Historical VMS data (15+ years)</td>
<td>Historical VMS data (15+ years)</td>
</tr>
<tr>
<td></td>
<td>Historical landings data (15+ years)</td>
<td>Historical landings data (15+ years)</td>
</tr>
<tr>
<td></td>
<td>Observer data</td>
<td>Observer data</td>
</tr>
<tr>
<td></td>
<td>Structured interviews with fleet</td>
<td>Structured interviews with fleet</td>
</tr>
</tbody>
</table>

---

**Figure 1. Wind Lease and Planning Areas Included in Analysis**

**Wind Lease Areas (WLAs)**

Accessed July 10, 2022

**Wind Planning Areas (WPAs)**

Accessed July 10, 2022
Develop Initial Products

Analytical Front-End

- Categorize VMS data into Trips
- Classify Vessel Movements by State
- Map Vessel Activity Over WPLA Footprint
- Calculate Minimum Estimated Impact

Analyst requests data via code

If credentials approved, anonymize, aggregated data returns

Table 3: Summary Statistics for all Trips Taken by Class Participants per Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Trips</th>
<th>Mean Annual Time at Sea (Days)</th>
<th>Mean Annual Distance Traveled (NM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1,245</td>
<td>1.4</td>
<td>107.4</td>
</tr>
<tr>
<td>2009</td>
<td>1,267</td>
<td>1.5</td>
<td>109.6</td>
</tr>
<tr>
<td>2010</td>
<td>2,202</td>
<td>1.4</td>
<td>140.0</td>
</tr>
<tr>
<td>2011</td>
<td>1,290</td>
<td>1.7</td>
<td>147.9</td>
</tr>
<tr>
<td>2012</td>
<td>2,046</td>
<td>1.0</td>
<td>154.6</td>
</tr>
<tr>
<td>2013</td>
<td>2,249</td>
<td>1.6</td>
<td>157.9</td>
</tr>
<tr>
<td>2014</td>
<td>2,238</td>
<td>1.6</td>
<td>160.3</td>
</tr>
<tr>
<td>2015</td>
<td>2,371</td>
<td>1.6</td>
<td>162.4</td>
</tr>
<tr>
<td>2016</td>
<td>2,326</td>
<td>1.8</td>
<td>179.0</td>
</tr>
<tr>
<td>2017</td>
<td>2,197</td>
<td>2.0</td>
<td>189.8</td>
</tr>
<tr>
<td>2018</td>
<td>2,196</td>
<td>1.9</td>
<td>190.0</td>
</tr>
<tr>
<td>2019</td>
<td>2,149</td>
<td>1.8</td>
<td>168.5</td>
</tr>
<tr>
<td>2020</td>
<td>1,057</td>
<td>1.9</td>
<td>166.4</td>
</tr>
</tbody>
</table>
Review with Advisory & Review Panel

Analytical Front-End

Advisory & Review Panel
- Peer Review Criteria
- Kickoff Review
- Interim Review
- Final Review

Webinars

Eventually will migrate code to github
Lessons Learned

1. Standardization of data is a meaningful part of the challenge
2. Trust is built through collaboration and communication
3. Get buy-in

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

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
4. Developing and Testing Hypotheses Generated by Fishing Industry Members

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)
Can Proprietary Commercial Lobstering Data be Used to Inform Offshore Wind Development?

• Project Lead: Kate Beard-Tisdale, University of Maine, Orono, ME
• Project Partners: Maine Lobstermen’s Association, UMaine’s Lobster Institute
• Project Objectives:
  1. Develop and test a proof of concept that high quality, fine-scale spatial temporal representations of the Maine lobster fishery can be generated from individual fisherman’s personal computer (PC)-based navigation and plotter data
  2. Assure that the proof of concept addresses the proprietary nature of the individual fisherman’s data contributions
  3. Develop product specifications and initial sample products that will meet the needs of fisheries management and marine spatial planning
THANK YOU

Fisheries Knowledge Trust
Surveying commercial fish species and habitat in wind farm areas using a suite of non-lethal survey methods
(Award DE-EE0009799)

Coonamessett Farm Foundation – Dr. Liese Siemann, Tasha O’Hara, Farrell Davis, and Luisa Garcia
Collaborators

**Video trawl survey**
UMASS School of Marine Science and Technology – Dr. Kevin Stokesbury

**Technology development**
Kitware. Inc. – Matthew Dawkins and Dr. Anthony Hoogs
Sexton Corporation – Jeremy Childress and Charley Weller

**Commercial fishing companies – research vessels**
Arnie’s Fisheries
Atlantic Capes Fisheries
Eastern Fisheries
Empire Fisheries
Nordic Inc.
Quinn Fisheries
Shamrock Fisheries
Viking Village
Project Objectives

1. Develop a methodological framework for monitoring commercial fish and invertebrate species in wind farms using optical surveys
   • Preferred survey designs
   • Freely available automated detectors and image sets for training new machine learning algorithms
   • Design schematics/technical drawings for any new gear designs (ropeless stationary camera systems)

2. Evaluate the impacts of offshore wind development on commercial fish and invertebrate species and benthic habitats by conducting spring and fall surveys during pre-construction, construction, and post-construction periods (spring 2024 – fall 2026)
Project Timeline

**Period 1 (14 months)**
- Establish relationships with project partners
- Complete peer-reviewed survey designs
- Design and test modified video trawl
- Design and test ropeless camera system
- Test front-facing sonar on HabCam v3
- Continue developing automated detector models

**Period 2 (24 months)**
- Conduct three sets of optical surveys (HabCam, video trawl, and stationary cameras) in spring 2024, fall 2024, and spring 2025
- Develop project database
- Upgrade data storage capacity
- Continue developing automated detector models

**Period 3 (22 months)**
- Conduct two sets of optical surveys in spring 2026 and fall 2026
- Complete statistical analysis of project data
- Finalize automated detector models and upload to open-source repository

**Outputs**
- Stakeholder meetings and public webinars
- Project reports
- Peer-reviewed publications
Optical Survey Tools – HabCam v3

Towed off-bottom stereo camera system
- 24-hr continuous survey tracks
- Overlapping still images
- Typical annotation rate of 1:100 provides data at 40-m intervals along the track

Abundance and biomass maps
Optical Survey Tools – Video Trawl (SMAST)

SMAST video trawl
- Cylinder with cameras and lights, and sensors at the leading edge of the cod end in a standard bottom trawl net
- Fish/other are filmed as they pass into the cod end
- Effective tool for fish surveys over hard bottom when mud clouds do not obscure the video
Optical Survey Tools – Stationary Cameras

**Ropeless systems**
- Multi-day deployments over full diurnal and tidal cycles
- Edgetech ropeless lobster traps as base
- Custom cameras with hydrophones and long-term batteries (Sexton)

**Anchored systems**
- Short deployments
- Mixed of baited and unbaited
- Impacts of lighting
- Custom cameras with hydrophones (Sexton)

Before-After-Gradient design
# Focal Species and Fisheries

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>HABCA M SURVEY</th>
<th>VIDEO TRAWL SURVEY</th>
<th>STATIONARY CAMERA SURVEYS</th>
<th>FISHERY MANAGEMENT PLAN (FMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONGFIN SQUID</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Mackerel, Squid, and Butterfish FMP</td>
</tr>
<tr>
<td>SHORTFIN SQUID</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Mackerel, Squid, and Butterfish FMP</td>
</tr>
<tr>
<td>BUTTERFISH</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Mackerel, Squid, and Butterfish FMP</td>
</tr>
<tr>
<td>ATLANTIC MACKEREL</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Mackerel, Squid, and Butterfish FMP</td>
</tr>
<tr>
<td>WINTER AND LITTLE SKATE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Skate Complex FMP</td>
</tr>
<tr>
<td>BARDOOR SKATE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Skate Complex FMP</td>
</tr>
<tr>
<td>SUMMER FLOUNDER</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Summer Flounder, Scup, and Black Sea Bass FMP</td>
</tr>
<tr>
<td>SCUP</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Summer Flounder, Scup, and Black Sea Bass FMP</td>
</tr>
<tr>
<td>BLACK SEA BASS</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Summer Flounder, Scup, and Black Sea Bass FMP</td>
</tr>
<tr>
<td>SILVER AND OFFSHORE HAKE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Small-Mesh Multispecies FMP</td>
</tr>
<tr>
<td>RED HAKE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Small-Mesh Multispecies FMP</td>
</tr>
<tr>
<td>MONKFISH</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Monkfish FMP</td>
</tr>
<tr>
<td>JONAH AND ROCK CRAB</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Interstate FMP for Jonah Crab</td>
</tr>
<tr>
<td>AMERICAN LOBSTER</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Interstate FMP for American Lobster</td>
</tr>
<tr>
<td>YELLOWTAIL FLOUNDER</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>WINTER FLOUNDER</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>WINDOWPANE FLOUNDER</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>WHITE HAKE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>OCEAN POUT</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>ATLANTIC COD</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Northeast Multispecies FMP</td>
</tr>
<tr>
<td>SPINY DOGFISH</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Spiny Dogfish FMP</td>
</tr>
<tr>
<td>SEA SCALLOP</td>
<td></td>
<td></td>
<td>X</td>
<td>Sea Scallop FMP</td>
</tr>
<tr>
<td>BLUEFISH</td>
<td></td>
<td></td>
<td>X</td>
<td>Bluefish FMP</td>
</tr>
</tbody>
</table>
Fishery 12-year Landings

Most impacted Fishery Management Plans
- Also fisheries with highest revenue
- Based on data from commercial landings, Vessel Trip Reports, and surfclam/ocean quahog logbooks
- Not likely to be observed includes Atlantic herring and surfclam/ocean quahog
- Does not include species targeted primarily by recreational fisheries (striped bass) or abundant species not targeted in any fisheries (sea robins)

Revolution Wind
- Mackerel, Squid, and Butterfish FMP
- Skate Complex FMP
- Summer Flounder, Scup, and Black Sea Bass FMP
- Small-Mesh Multispecies FMP
- Monkfish FMP
- Interstate FMP for Jonah Crab
- Interstate FMP for American Lobster
- Northeast Multispecies FMP
- Spiny Dogfish FMP
- Sea Scallop FMP
- Bluefish FMP
- Not likely to be observed with survey tools
- Other

Vineyard Wind 1
## Data Collection by Survey

<table>
<thead>
<tr>
<th>DATA TYPE (ALL LINKED TO LOCATION)</th>
<th>HABCAM SURVEY</th>
<th>VIDEO TRAWL SURVEY</th>
<th>STATIONARY CAMERA SURVEYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STILL IMAGES</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VIDEO</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SOUND LEVELS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BOTTOM/NEAR-BOTTOM TEMPERATURE</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TEMPERATURE PROFILES</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NEAR-BOTTOM SALINITY</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TRADITIONAL FISHERIES CATCH DATA</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SPECIES COUNTS (DERIVED)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SPECIES LENGTHS (DERIVED) COASTAL AND MARINE ECOCOLOGICAL CLASSIFICATION STANDARD (CMECS)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SPECIES BIOMASS (DERIVED)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SUBSTRATE/HABITAT TYPE (DERIVED)*</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Simplified Coastal and Marine Ecological Classification Standard (CMECS) categories*
Automated Detection and Classification (Kitware)

• Develop automated detector models for important commercial fish species and benthic habitat types

• Models will be available through the open-source application Video and Image Analytics for Marine Environments (VIAME)
Calibration Experiments for a Novel Clam Survey Dredge & Monitoring Carbonate Chemistry of Surfclam Habitat

Drs. Daphne Munroe, Jason Morson
Rutgers University, Haskin Shellfish Research Lab

Dr. Grace Saba
Rutgers University, Department of Marine & Coastal Sciences

Mr. Tom Dameron
Surfside Seafood Products LLC

Dr. Daniel Hennen
NOAA Northeast Fisheries Science Center

Reneé Reilly & Colleen Brust
NJ DEP
Goals of the Project

• **Obj1**: Construction of a scientific surfclam dredge
  • Smaller bar spacing

• **Obj2**: Dredge calibration
  • Federal Survey Stations
  • Size Selectivity Experiments
  • Dredge Efficiency Experiments

• **Obj3**: Ocean Acidification Data
  • Profile carbonate saturation.
  • Benthic grabs (early recruits)
  • Shell strength testing
Goals of the Project

- **Obj1:** Construction of a scientific surfclam dredge
  - Smaller bar spacing

- Relied heavily on industry support and collaboration

- Likewise in vessel preparation for other survey efforts
Obj2: Dredge calibration
- Federal Survey Stations

At each station:

- Benthic grab
  - Links with long-term state survey

- CTD & pCO2 sensor cast
  - Oceanographic profile & bottom water chemistry

- Standardized dredge tow
  - Clam abundance, size & age frequency, shell strength
2mm x 2mm mesh
Next Steps

- **Obj2**: Dredge calibration
  - Size Selectivity Experiments
  - Dredge Efficiency Experiments
- **Obj3**: Ocean Acidification Data
  - Oceanographic data processing
  - Shell ages
  - Shell strength testing
Fisheries Monitoring Of An Offshore Windfarm
Ocean Wind 1

Jason Morson, Jason Adolf, Kaycee Coleman, Gregory Decelles, Keith Dunton, Thomas Grothues, Josh Kohut, Daphne Munroe, Grace Saba, Kevin Wark, and Douglas Zemeckis
Ocean Wind 1

**Location:** Approximately 15 miles off the coast of southern New Jersey

**Timeline:** Construction is planned to start in the early 2020’s, with the wind farm expected to provide first power in late 2024

**Turbine:** GE Haliade X 12 MW turbine

**Capacity:** 1,100 MW

**Annual Production:** Enough to power more than 500,000 homes

**Owner & Developer:** 75% Ørsted, 25% PSEG

[Map Image]
Ocean Wind 1 Fishery Monitoring Plan

- **Trawl Survey** *(Extractive)*
- **eDNA** *(Non-Extractive)*
- **Clam Dredge Survey** *(Extractive)*
- **Acoustic Telemetry** *(Extractive/Non-Extractive)*

**Structured Habitat Survey:**
- BRUV *(Non-Extractive)*
- Chevron Traps *(Extractive)*
- Hook-and-Line Fishing *(Extractive)*

**Acoustic Glider-Based Surveys** *(Non-Extractive)*

**Towed Camera Surveys** *(Non-Extractive)*
Atlantic Surfclam Cooperative Fishery Survey

Aim: Quantify dynamic abundance, distribution, age of surfclams.

Methods:
- Survey Vessel: FV Joey D, commercial clam boat
- Samples collected with a modified commercial hydraulic dredge
- Ten tows in wind lease area, ten tows in control area, per year
- Before-After-Control-Impact (BACI) design

Anticipated Outcome: document the commercial clam resource within the wind lease and evaluate any changes to the stock over time or due to wind farm construction.
Acknowledgements

• Thanks to all of the collaborating Captains and Crews among our fishing industry collaborators.

• Thank you to all of the technicians and staff from Rutgers University who participated in projects.

• Funding for the fisheries monitoring plan of Ocean Wind 1 has been provided by Ørsted North America, LLC.

• Funding for construction and calibration of the dredge, and carbonate chemistry studies provided by the New Jersey Research &Monitoring Initiative (RMI)

Rutgers Offshore Wind Living Resources Studies (ROWLRS) https://rowlrs.marine.rutgers.edu/
State Updates
Maine State Update

Casey Yanos, Maine Department of Marine Resources
Casey.yanos@maine.gov
Maine’s Climate and Clean Energy Targets

- **Reduce Maine’s Greenhouse Gas Emissions**
  - **45%** below 1990 levels by 2030
  - **80%** below 1990 levels by 2050

- **Renewable Portfolio Standard Requirements**
  - **80%** by 2030
  - **100%** by 2050

- **Achieve Carbon Neutrality by**
  - **2045**
Offshore Wind is an Opportunity for Maine to:

- Fight Climate Change
- Harness Renewable Energy
- Create Jobs & Economic Growth
- Sustain Maine’s Maritime Heritage

Maine Offshore Wind Initiative

Stephanie.Watson@maine.gov
Lobster landings are 82% of Maine’s total and represent 80% of the total U.S. lobster catch. It is the second most valuable ocean species harvested in the U.S.
About the Initiative

Planning & Stakeholder Engagement
- Maine Offshore Wind Roadmap
- Ports Studies & Stakeholder Group
- BOEM Gulf of Maine Task Force

Research & Innovation
- University of Maine Demonstration Project
- Gulf of Maine Research Array
- Maine Offshore Wind Research Consortium

Policy & Legislation
- Bipartisan legislation supporting Research Array, Research Consortium, and prioritizing federal waters for commercial OSW

Partnerships
- University of Maine
- Regional Wildlife Science Consortium for OSW
- National Offshore Wind R&D Consortium
- Responsible Offshore Science Alliance
- Business Network for Offshore Wind
- MOU with United Kingdom
Maine Offshore Wind Roadmap
Led by Governor’s Energy Office with Support from Other State Agencies

Advisory Committee
GEO, Working Group Co-Chairs and Other Public, Private and Non-governmental Leaders

Working Groups:
Technical knowledge and subject matter expertise

Supply Chain, Workforce, Ports & Marine Transportation
Renewable Energy Markets & Strategy
Fisheries
Environment & Wildlife

Focus on Economic Opportunities and Socioeconomic Impacts
Focus on Research/Data Gaps and BOEM Process
Maine Offshore Wind Roadmap
Led by Governor’s Energy Office with Support from Other State Agencies

The Maine Offshore Wind Roadmap is supported by a $2.16 million federal Economic Development Agency Grant awarded to GEO in 2020. The Roadmap supports the State's 10-Year Economic Development Plan.

96 Members of Working Groups and the Advisory Committee building the Roadmap

75+ Public Working Group and Advisory Committee meetings from July 2021 - Present

maineoffshorewind.org

Technical Studies
• Supply Chain Opportunity Assessment
• Maine and New England Energy Analysis
• Ports Infrastructure Studies
• Workforce Development
• Socioeconomic Analysis
• Transmission Analysis
Key Themes and Cross-Cutting Topics from the Working Groups

- Advance renewable energy markets to reach climate goals
- Foster economic development opportunities through investments in supply chain, infrastructure, and workforce
- Support and sustain Maine’s fisheries and coastal communities
- Preserve the Gulf of Maine environment and wildlife
- Advance Maine-based innovation

Cross-cutting topics:
- Regional coordination and collaboration
- Ongoing stakeholder engagement and communications
- Equity
- Transparency and data-driven decision-making

https://www.maineoffshorewind.org/working-group-recommendations/
Notable Recommendations from the Working Groups

Environment and Wildlife Working Group
• Map Existing Data:
  • Conduct a mapping exercise in mid-2022 that collates existing data available in the GoM to identify where areas of greatest conflict between offshore wind energy development and wildlife may currently exist in GoM federal waters and identify data gaps that need to be filled in to inform offshore wind leasing.

Fisheries Working Group
• In the near term and ongoing, the State should engage with fishermen, scientists, and other stakeholders with expertise in fisheries, wildlife, and the environment to compile and map the areas of known concentration of priority species and habitat and fishing activity in order to appropriately site wind energy lease areas in the Gulf of Maine.

https://www.maineoffshorewind.org/working-group-recommendations/
PHASE 1:
Develop draft recommendations (July 2021 – Feb 2022)

PHASE 2:
Refine recommendations (March - July 2022)

PHASE 3:
Finalize Roadmap (Aug - Dec 2022)

PHASE 4:
Communicate Roadmap (Jan 2023 and beyond)

Proactive engagement to solicit public & stakeholder feedback

maineoffshorewind.org
Gulf of Maine Floating Offshore Wind Research Array

Why A Floating Research Array?

- **Advance** phased approach to floating technology as seen worldwide
- **Research** the effects of multiple floating turbines on marine life, fishing, and more
- **Maximize** research and innovation in floating offshore wind to help grow U.S. floating supply chain
- **Support** UMaine’s public-private partnership
- **Work** with fishing, environmental, and other marine interests to answer important questions
- **Use** the experience to inform the work of the offshore wind roadmap and future projects, including lowering the cost of floating wind in the Gulf of Maine
Maine Research Array

- Located in the “Petterson Mud”, fine grain mud
- Upper boundary approximately 43 km offshore
- Area of approximately 40 km²
- Depth between 165 and 182 m
- Up to 12 turbines
<table>
<thead>
<tr>
<th>Survey</th>
<th>Collaborating Agency</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Acoustic Survey</td>
<td>Gulf of Maine Research Institute (GMRI)</td>
<td>Pelagic fish schools, demersal fish biomass, invertebrate biomass,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>depth of biological maximum, size-spectral analysis of pelagic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>community</td>
</tr>
<tr>
<td>eDNA Sampling</td>
<td>GMRI</td>
<td>Ground truth acoustic signals, identify species</td>
</tr>
<tr>
<td>Zooplankton Survey</td>
<td>Bigelow Lab</td>
<td>Zooplankton distribution and aggregation, community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>characterization, abundance and seasonal timing of lobster larvae</td>
</tr>
<tr>
<td>Bottom Trawl Survey</td>
<td></td>
<td>Fish and invertebrate species composition, biomass, abundance</td>
</tr>
<tr>
<td>Lobster Survey</td>
<td></td>
<td>Characterization of lobster population</td>
</tr>
<tr>
<td>Passive Acoustic Monitoring</td>
<td></td>
<td>Presence of marine mammals, ambient noise levels</td>
</tr>
<tr>
<td>Seafloor Habitat Characterization</td>
<td>University of Maine</td>
<td>Seafloor and water column samples, multibeam sonar surveys</td>
</tr>
<tr>
<td>Large Pelagic and Benthic Fish Monitoring</td>
<td>University of Maine</td>
<td>Distribution and habitat use of large pelagic and benthic fishes,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>species assemblage, small-scale movement of individuals</td>
</tr>
<tr>
<td>Oceanography</td>
<td>University of Maine and WHOI</td>
<td>Physical oceanographic, biogeochemical, and biological data</td>
</tr>
<tr>
<td>Ecosystem Modeling</td>
<td>Various</td>
<td>Ecosystem connectivity, cascading effects</td>
</tr>
<tr>
<td>Local Historical Knowledge and Mapping</td>
<td>University of Maine and Maine Coast Fishermen’s Association</td>
<td>Current and past use of area, fisheries support mechanisms, potential impacts on culture, identity, economic growth, and/or ecological changes, general attitude towards OSW</td>
</tr>
</tbody>
</table>
Contributed Comments to BOEM Documents and Regulations

• Fisheries Compensatory Mitigation
• 2024 Environmental Studies Program Recommendations
• Guidance for Submission of Offshore Wind Project Plans
• RFI for Commercial Lease Areas

Overarching themes of comments:
• Cumulative impact assessments
• Increased communication with fishing industries

• BOEM will have meetings with fishers in Maine January 2023
Starting the Planning Process in the Gulf of Maine: First Steps

**Commercial Track**

Request For Interest (RFI)

- **Comment Period**
- **Determination of Competitive Interest**
- **NO**
- **Environmental Assessment**
- **Non-Competitive Lease Issuance**

Non-Competitive Leasing Process: Commercial Lease

- **YES**
  - Competitive Commercial Leasing Process

Request For Competitive Interest (RFCI)

- **Comment Period**
- **Determination of Competitive Interest**
- **NO**
- **Environmental Assessment**
- **Non-Competitive Research Lease Issuance**

Non-Competitive Leasing Process: Research Lease

**Research Track**
Regional Research Updates from New Jersey

December 19, 2022
NJ’s Offshore Wind (OSW) Goals

• The state’s offshore wind target is 11 GW by 2040.
• Three projects in development with a 3rd solicitation draft guidance currently out for comment.
• Goal is OSW development with minimal impacts to natural resources.
New Jersey’s Offshore Wind Research & Monitoring Initiative (RMI)

- Initial funding through NJ’s 2nd Offshore Wind Solicitation
- $10K/MW for research and monitoring on wildlife and fisheries
- Research priorities developed in house and stakeholdered
- Projects developed in collaboration with subject matter experts
- Project funding awarded through contracts with state universities, NJ Sea Grant Consortium members, and through RFPs
Identifying Resources of Concern

- Stakeholder Concerns, including findings of Regional Groups (i.e., RWSC & ROSA)
- Species that are threatened, endangered, or protected
- Species sensitive to a particular effect
- Habitats likely to be significantly altered
- High-value habitats
- Fisheries that operate in or travel through WEA
- Fisheries with high social or economic value
- Fisheries likely to be affected by presence of turbines or cables
Projects approved for funding

Regional Wildlife Science Collaborative Support

Responsible Offshore Science Alliance Support

Novel Clam Survey Dredge & Carbonate Chemistry

Socioeconomics of recreational fisheries pre-OSW

Using OSW structures as monitoring platforms

Giders for ecological & oceanographic monitoring

Passive acoustic monitoring for baleen whales

Acoustic telemetry for commercial & recreational fish

Harbor seal tracking & health assessment
Projects in development

- eDNA for commercially- & recreationally-important fishes
- Whale satellite tagging
- Benthic habitat mapping
- Near real-time passive acoustic monitoring of whales
- GIS tool for research & monitoring efforts
- New Jersey Ocean Trawl Mitigation
- Sea turtle tagging
- Expansion of the Motus network for birds & bats
Challenges

• Stakeholder fatigue
• Research capacity
• Data standardization and accessibility
• Accessibility of science
• Not enough information on how to mitigate fisheries losses
• Loss of access for surveys

Next Steps: Phase II

• 3rd party process review
• Move beyond pre-construction
• Seek innovations in mitigation
Survey Mitigation Strategy

**Final strategy** published December 5

Five goals of the strategy:
1. **Mitigate wind project impacts on NOAA surveys**
2. **Evaluate and integrate monitoring studies**
3. **Collaboratively plan/implement survey mitigation**
   - Integrate partners, stakeholders, and other ocean users
   - Use the principles of best scientific information available and co-production of knowledge
4. **Adapt the strategy, as needed, recognizing:**
   - Dynamic nature of wind energy development
   - Evolution of survey technology/approaches, marine ecosystems, and human uses
5. **Advance coordination between NOAA Fisheries and BOEM**
   - Share lessons learned with other regions/nations
Wind Socioeconomic Impacts

- Commercial and party/charter
- Annual landings/revenue
- FMP, species, gear, port, state
- Species/area dependence
- Vessel/trip and small/large entity counts
- Yearly regional % totals

2020 and 2021 Data Now Available
Pending Research Publications

Allen-Jacobson et al. 2023
● Compared study fleet data to fishing footprint data

DePiper et al. 2023
● Mapping alternative private recreational fishing data sources

FishRules App Data - Black Sea Bass
FishBrain App Data - Black Sea Bass
Methratta et al., 2023
- Identifies NMFS GAR research priorities and includes:
  - Research questions under each priority
  - Temporal scale and resolution
  - Need for baseline data
  - Available methods/approaches
  - Importance to NMFS and management implications

Hogan et al., 2023
- RODA, NMFS, BOEM Synthesis of the Science on fisheries interactions with offshore wind

Friedland et al., 2023
- Uses species distribution models to explore preferential use of wind energy areas by forage fish

Chaji and Werner, 2023
- Evaluates scallop effort displacement from proposed wind projects
Pending Research Publications

**Jech, et al. 2023**
- Observations of 3D biomass within the Block Island Wind Farm using conventional and volumetric echosounders

**Van Hoeck et al., 2023**
- Compares Atlantic cod temporal spawning dynamics across a biogeographic boundary using passive acoustic monitoring (PAM) methods

**McCandless et al., 2023**
- Synthesizes information, knowledge gaps, and research recommendations for pelagic highly migratory finfish
Protected Species Guidance

- Intended to assist researchers and developers
- Outlines protected species permitting issues for fisheries surveys and monitoring activities
- Includes guidance for work conducted during fishing operations or scientific research activities
- Will be posted on the [GARFO wind website](http://garfo-wind) soon
Integrated Ecosystem Assessment

- Science-based process for conducting Ecosystem-Based Management
- Provides decision-support information
- Initial scoping underway for offshore wind and fisheries interactions in the Gulf of Maine
Other Initiatives

On-Demand/Ropeless Lobster Fishing EFP

- Operations will occur February 1 through April 30 in the South Island and the Massachusetts Restricted Areas (pink area)
- Lobster trawls buoys will not be visible on the surface
- Trawl locations can be identified via the EdgeTech TrapTracker App available (subscription required)
- Please contact Brian Galvez for more information (brian.galvez@noaa.gov)
## Fisheries Survey/Monitoring Plans

<table>
<thead>
<tr>
<th>Project</th>
<th>Trawl</th>
<th>Trap &amp; Pot</th>
<th>Dredge</th>
<th>Gillnet</th>
<th>Telemetry</th>
<th>Rod &amp; Reel</th>
<th>Camera/BRUV</th>
<th>eDNA</th>
<th>Plankton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vineyard Wind 1</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>South Fork</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ocean Wind 1</td>
<td>?</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Revolution Wind</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empire Wind</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunrise Wind</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayflower Wind</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlantic Shores S</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Wind</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New England Wind</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: '?' indicates a question or uncertainty.*
Fisheries Survey/Monitoring Plans

Issues and concerns:

- Lack of regional coordination and standardization
- Clearly defined study questions/hypotheses, linked to methods with and that have a well defined rationale
- Absence of studies of specific impact producing factors
- Inconsistent approaches and methods/gear
- Adequate baseline data collection (1 vs. 3 years)
- Appropriate sampling design (e.g., BACI, BAG)
- Adequate sample size and power analyses
- Appropriate analytical methodologies
- Accounting for likely sources of variation
- Data storage, sharing, and access
OWE Liaison: Expected Outcomes

- Sea Grant programs will have the capacity to provide assistance to stakeholders.
- Stakeholders’ abilities to make informed decisions will increase.
- Project partners will both see an increase in the use of their research and outreach information & be able to use the Sea Grant network to understand additional information and research needs, etc.
Steering Committee

- NOAA Sea Grant
- Northeast Fisheries Science Center (NOAA)
- BOEM
- Responsible Offshore Science Alliance (ROSA)
- Northeast Regional Ocean Council (NROC)
- Northeast Sea Grant Consortium
Sea Grant is Boots on the Ground

- Science-based information
- Access to experts
Sea Grant brings people together to:

✓ discuss difficult topics
✓ identify/implement innovative solutions
Thank You!

Jennifer McCann
Sea Grant Offshore Wind Energy Liaison
jmccann@uri.edu
Northeast Sea Grant Consortium

Regional research and extension update

- Ocean Renewable Energy
- American Lobster Initiative

Gayle Zydlewski, Maine Sea Grant
gayle.zydlewski@maine.edu

https://www.northeastseagrant.com/
Regional Initiatives

American Lobster Initiative

OCEAN RENEWABLE ENERGIES

Six funded projects announced through unique partnership:

- U.S. Department of Energy
- NOAA Fisheries

Advancing Research for Co-Existence with Fishing & Coastal Communities

https://www.northeastseagrant.com
American Lobster Research Program
• Currently 24 affiliated projects
• Researchers from 40+ institutions across the Northeast
• Students, industry members, non-profits, government, academia

Northeast Regional Lobster Extension Program
• The 7 Northeast Sea Grant Programs (ME, NH, MIT, WHOI, RI, CT, and NY)
• Adds value to state-specific projects, addresses emerging regional needs
• Informed by a Regional Steering Committee

https://seagrant.umaine.edu/extension/american-lobster-initiative/
Northeast Sea Grant Consortium 2022-2023 – American Lobster Initiative

2 Newly Funded Research Projects:

• **PI: Kevin Staples – Maine Department of Marine Resources**
  The purpose of this award is the testing and evaluation of various gear modification technologies aboard commercial vessels, including spring-tag and timed release systems and subsea gear location integrations with chart plotting systems, and will collect information on the performance of these systems and how time spent fishing and trap retrieval success are affected.

• **PI: Erin Pelletier– Gulf of Maine Lobster Foundation**
  The purpose of this award is to provide lobstermen the necessary data imaging tools to navigate a changing environmental and regulatory landscape. The researchers propose new sensor deployments, model development, and data products that will effectively deliver critical information to the fleet.
Northeast Sea Grant Consortium
2022-2023 – Offshore Renewable Energy Partnership with DOE and NEFSC

- PI: Heather Leslie – University of Maine - Building Capacity for Participatory Approaches to Community Resilience and Ocean Renewable Energy Siting -
  - characterize values and beliefs in three communities to understand where ocean renewable energy is a good fit for people and place, and develop a community toolkit with maps, surveys, and participatory practices that can be applied across the Northeast.
PI: Kate Beard-Tisdale – University of Maine - Can Proprietary Commercial Lobstering Data be Used to Inform Offshore Wind Development?

- create a standardized procedure for constructing representations of the Maine lobster fishery using data and knowledge from individual fishermen, and develop data product models and sample products that will inform fisheries management and marine spatial planning.
PI: Alison Bates - Colby College - Community Engagement and Stakeholder Perceptions of Floating Offshore Wind -

- develop a stakeholder database, survey tools, and holistic outreach strategy to evaluate community perceptions of offshore wind, identify the capacity and necessary conditions for stakeholders to coexist with offshore wind, and present recommendations for equitable solutions.
Northeast Sea Grant Consortium
2022-2023 – Offshore Renewable Energy Partnership with DOE and NEFSC

• PI: Emily Diamond - University of Rhode Island - Evaluating Messaging, Communication Networks, and Public Engagement on Offshore Wind Development in Southern New England -
  • analyze public engagement strategies, messages, networks, and sources used to communicate and engage communities and stakeholders in decision-making for proposed offshore wind projects, and incorporate community perspectives to make recommendations for effective and equitable messaging and strategies.
PI: David Bidwell, University of Rhode Island - Regional Community Attitudes Regarding Procedural and Distributive Justice Dimensions of Southern New England Offshore Wind Development -

- assess community concerns and research questions regarding procedural, distributive, and recognitional justice dimensions of offshore wind projects in southern New England, and work to address barriers within and among communities to ensure equity and well-being for a just energy transition.
PI: Maha Haji, Cornell University - Achieving Community Resilience by Optimizing Symbiotic Offshore Renewable Energy and Food Systems

- develop a mapping tool for spatial planning allowing for the integration of multiple ocean uses in the same area.
- The goal is to enable symbiosis between renewable energy and food systems and empower stakeholders, fishers, aquaculture farmers, and developers to make informed decisions for long-term resilience.
Sea Grant Biennial Research Funding
2024-2026 RFPs open

For more information:

• NY: https://nyseagrant.org/proposals/
• CT: https://seagrant.uconn.edu/funding/grants/
• RI: https://seagrant.gso.uri.edu/research/#funding
• WHOI: https://seagrant.whoi.edu/funding-2/funding/
• MIT: https://seagrant.mit.edu/funding-opportunities-core-rfp/
• NH: https://seagrant.unh.edu/research/funding
• ME: https://seagrant.umaine.edu/funding-opportunities/
New/Continuing Initiatives

- **National**
  - Aquaculture
  - Marine Debris (Infrastructure Bill - $50M over 5 years)
  - Coastal Resilience - since 2021 working on this focused initiative across the network - Coastal communities are more resilient to weather and climate hazards with Sea Grant support through coastal research, education, engagement, and outreach that informs and helps improve planning and risk assessment, disaster preparedness and recovery, resilience design and project implementation, and by addressing long-standing economic and social inequities that cause some communities to be more vulnerable to the impacts of hazards.

  - Building off internal and partner discussions about needs/opportunities
National Initiatives - DEIJA

Reaching Outward and Looking Inward
Building Sea Grant Resilience from the lens of Diversity, Equity, Inclusion, and Justice
10 year vision

Sea Grant Diversity, Equity, Inclusion, and Justice
Community of Practice and Resources page
Collaborating on regional research to inform decision-making at the intersection of offshore wind and fisheries

Offshore wind is expanding along the US East Coast—deepening interest among those active in Atlantic waters in better understanding interactions between offshore wind and ocean ecosystems.

With offshore wind projects spanning multiple states and many organizations launching research, a coordinated approach is needed to ensure credible data is collected and shared.

Leading Regional Offshore Wind and Fisheries Research

The Responsible Offshore Science Alliance (ROSA) is a nonprofit organization leading a collaborative effort to advance research and monitoring on the potential effects of offshore wind on fisheries.

At the heart of ROSA’s work is a community-of-fishermen, offshore wind developers, academics, government.

We are the only entity working full-time on offshore wind and fisheries research:

- Setting research priorities
- Enabling collaboration among scientists
- Reducing redundancy
- Providing scientific leadership

https://www.rosascience.org/
New ROSA Website!

https://www.rosascience.org/

Resources Developed by ROSA or in Collaboration with Partners

Regional Framework Database
A two-part Fish FORWRD database, part of the Regional Framework, one that synthesizes existing research priorities and one that compiles research being undertaken by programs along the East Coast. The analysis of data in these databases highlights gaps in research that can inform future research prioritization. The associated report outlines how to use these databases and their potential for informing research and decision-making.

Report and Recommendations on Fisheries Resource Data Production, Storage, and Accessibility
This report highlights the results from a ROSA-commissioned study on the current status of data standardization and sharing related to potential impacts of offshore wind on fisheries.

Research Prioritization Meeting Summary
This summary provides an overview of a research prioritization meeting that was hosted in the summer 2022 by several organizations, including the Responsible Offshore Science Alliance (ROSA) and the Regional Synthesis Workgroup of the Offshore Wind Environmental Technical Working Group (E-TWG). The goal of the meeting was to discuss general
Regional Items of Interest

- **NYSERDA PON 5226**
  - $2.5 million to support environmental & fisheries research
  - Proposals due March 13, 2023 by 3pm ET

- **Fisheries Mitigation RFI**
  - Comments due by January 31, 2023 by 5pm ET

- **NJ OSW Solicitation #3**
  - Comments on draft solicitation guidance due December 29, 2022
Upcoming Meetings

- **NOAA Cooperative Research Summit**
  - January 31, 2023 - Newport News, VA
  - February 15, 2023 - Providence, RI

- **AFS Southern Division annual meeting**
  - February 2-5, 2023 - Norfolk, VA
  - Session on “Offshore wind and fisheries: monitoring interactions and assessing impacts”
Other Updates

• **Next Quarterly meeting:**
  • Late Spring 2023
  • Focus TBD

• **ROSA Staffing updates**

• Please reach out with topics of interest for meetings or sector-specific calls ([mike@rosascience.org](mailto:mike@rosascience.org))