ROSA
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Progress & Gaps in Offshore Wind Fisheries Research

U.S. Atlantic Coast

Research Gaps Analysis Final Report

Tricia Perez, Research Program Manager

April 8, 2026

Agenda

10:00 **Introduction to the Research Gaps Analysis & Final Report**

10:10 **Results by Research Category (~5 min each)**

- Cumulative Impacts & Fisheries Management Implications
- Data Management
- Regional Resource Monitoring
- Species Distribution/Composition
- Habitat Fragmentation/Modification
- EMF
- Sound/Vibration Impacts
- Fisheries Engagement & Capacity Building
- Fishing Access
- Socioeconomic & Sociocultural Impacts
- Survey Adaptation

11:10 **Wrap Up & Adjourn**

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Research Gaps Analysis

Systematically evaluates how existing research aligns with identified research needs across the U.S. Atlantic Coast offshore wind fisheries research landscape.

FishFORWRD | Fish and Fisheries OffshoRe Wind Research Database

OBJECTIVE

Increase awareness of ongoing and completed offshore wind fisheries research and monitoring

Avoid duplication of efforts

Create a common understanding of progress made and research needs remaining

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COMPONENTS

Research Projects

- Projects funded by federal agencies, state agencies, non-profits, etc.
- Individual Surveys of Offshore Wind Project-Level Fisheries & Benthic Monitoring Plans

Research Needs

- Individual Research Needs compiled from 17 research prioritization documents

Research Gaps Analysis

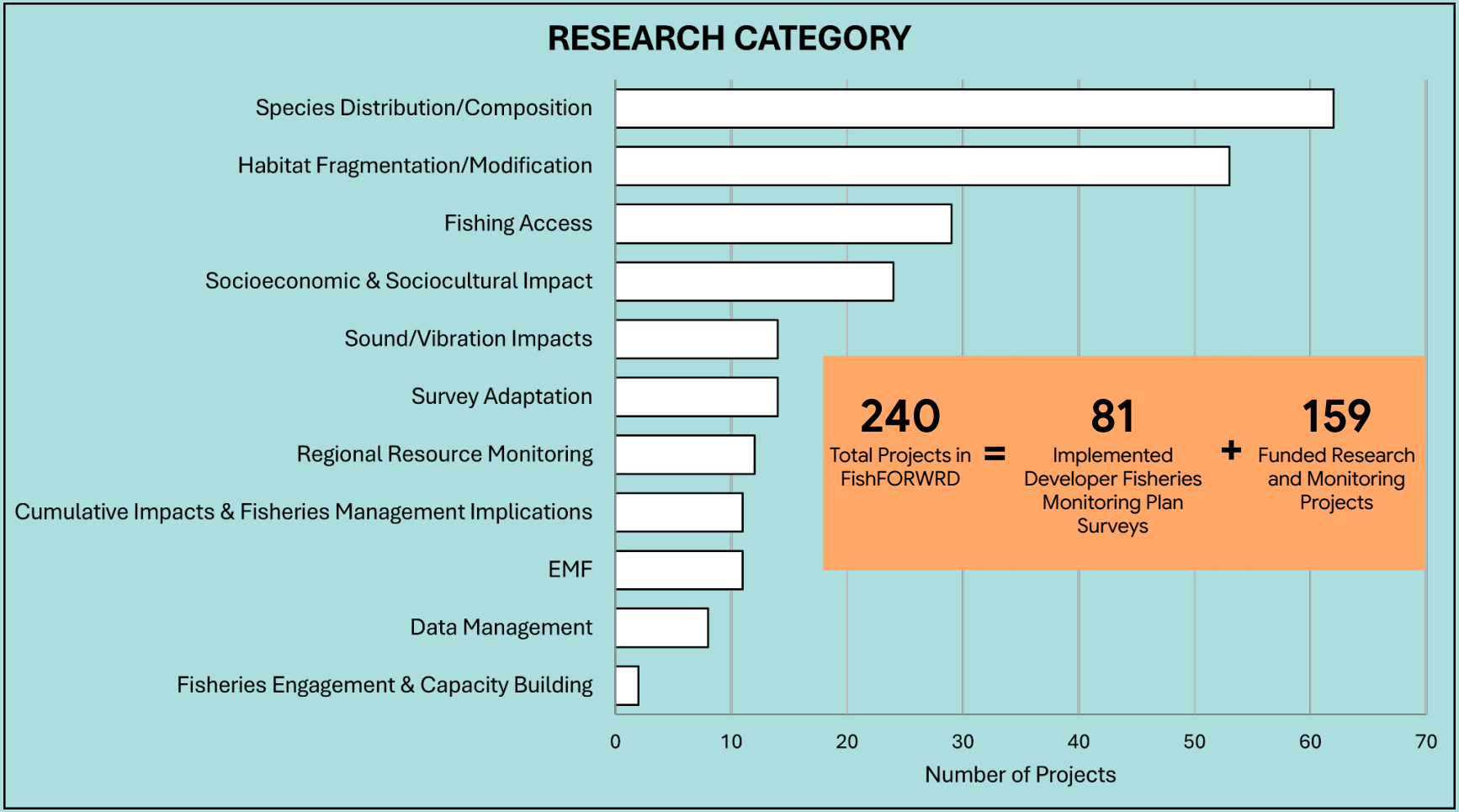
- 70 Summarized Research Needs structuring the offshore wind fisheries science space
- Assessment of coverage and gaps across all 70 Summarized Research Needs

RESEARCH CATEGORIES

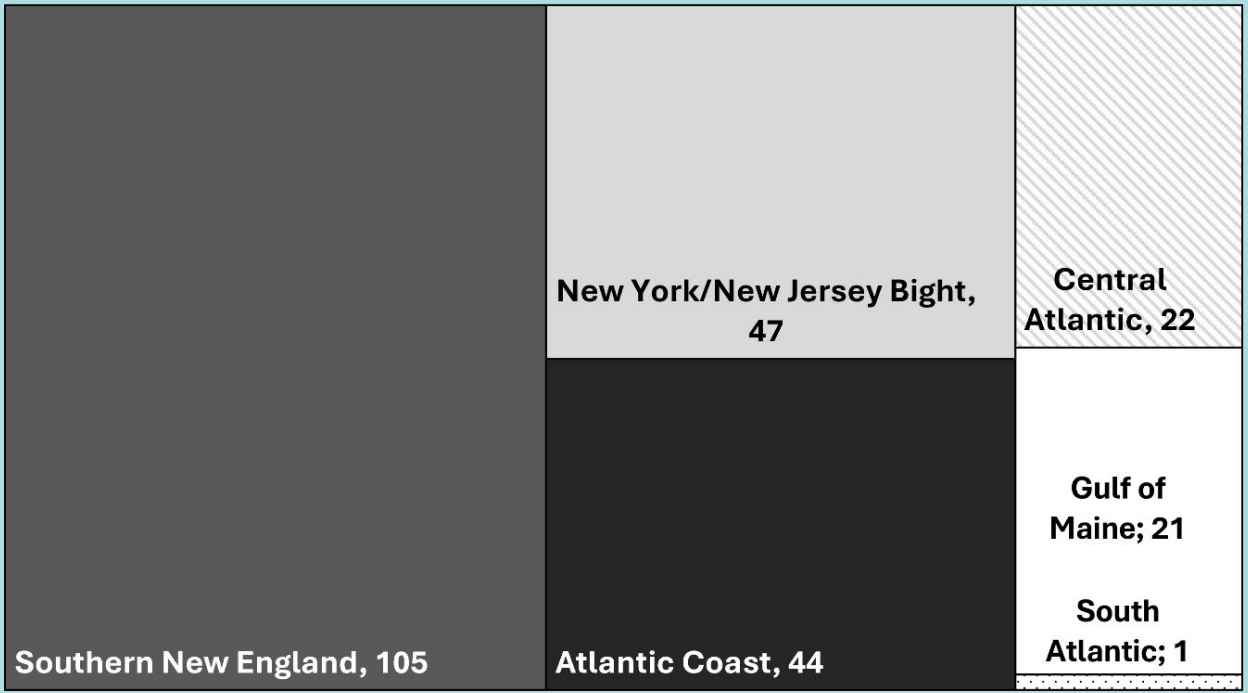
- Habitat Fragmentation/Modification
- Socioeconomic & Sociocultural Impacts
- Cumulative Impacts & Fisheries Mgmt
- Sound/Vibration Impacts
- Species Distribution/Composition
- EMF
- Fishing Access
- Fisheries Engagement & Capacity Building
- Survey Adaptation
- Data Management
- Regional Resource Monitoring

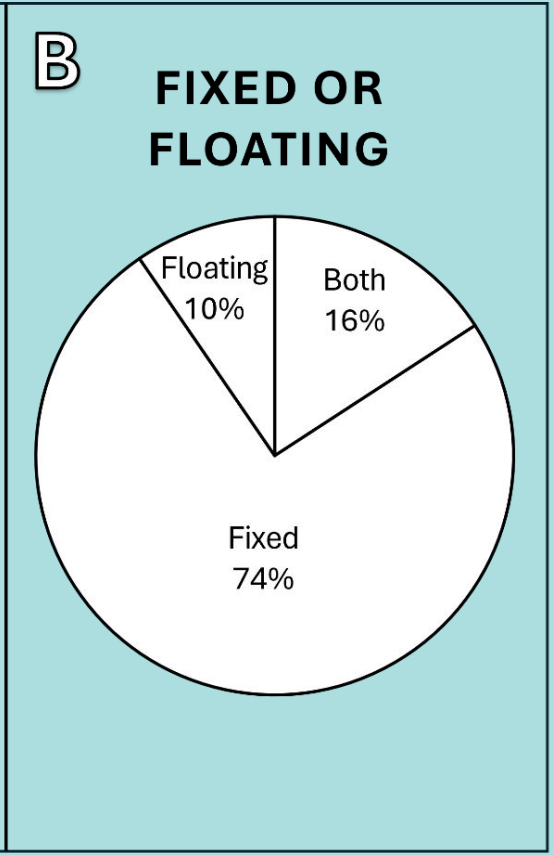

Cross-Cutting + Systems
Cumulative Impacts & Fisheries Mnmgt
Data Management
Regional Resource Monitoring
Impact Producing Factors (IPFs) & Ecological Changes
Species Distribution /Composition
Habitat Modification
EMF
Sound/ Vibration
Fisheries Impacts & Responses
Fisheries Engagement & Capacity Building
Fishing Access
Socio Economic & Socio Cultural
Survey Adaptation

Research Projects in FishFORWRD



Research Projects in FishFORWRD





More charts available in Final Report

Individual Research Needs

Acoustic Society of America 2022	Research priorities for sound and vibration effects on fishes and aquatic invertebrates
RODA, NOAA, BOEM 2023	Fisheries and Offshore Wind Interactions: Synthesis of Science
Massachusetts Division of Marine Fisheries 2018	Management Objectives and Research Priorities for Fisheries in the Massachusetts and Rhode Island-Massachusetts Wind Energy Area.
Massachusetts Division of Marine Fisheries 2019	MA DMF recommended fisheries studies for offshore wind development
NJ RMI 2021 & 2024	New Jersey Research and Monitoring Initiative Research and Monitoring Needs
NEFMC 2024	NEFMC Research Priorities and Data Needs, 2024-2028.
MAFMC 2021	Mid-Atlantic Fisheries Management Council Comprehensive Five Year (2020–2024) Research Priorities
Maine Offshore Wind Research Consortium 2023	Maine Offshore Wind Research Consortium. 2024. Research Strategy
Methratta 2023	Scientific Priorities for Offshore Wind and Fisheries Research in the Northeast U.S. Continental Shelf Ecosystem: Perspectives from scientists at the National Marine Fisheries Service.
NYSERDA Benthos WG 2020	Benthos Workgroup Report for the State of Science Workshop on Wildlife and Offshore Wind Energy 2020: Cumulative Impacts.
NYSERDA Env Stratification WG 2020	Environmental Stratification Workgroup Report for the State of Science Workshop on Wildlife and Offshore Wind Energy 2020: Cumulative Impacts.
RWSC Science Plan 2024	Regional Wildlife Science Collaborative (RWSC). 2024. RWSC Science Plan
SEER Benthic Disturbance 2022	U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER). 2022a. Benthic Disturbance from Offshore Wind Foundations, Anchors, and Cables.
SEER New Structure & Fish Ecology 2022	U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER). 2022b. Introduction of New Offshore Wind Farm Structures: Effects on Fish Ecology
SEER Noise 2021	U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER). 2021. Underwater Noise Effects on Marine Life Associated with Offshore Wind Farms
SEER EMF 2022	U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER). 2022c. Electromagnetic Field (EMF) Effects on Marine Life.

Research Gaps Analysis Process

1 INDIVIDUAL RESEARCH NEEDS

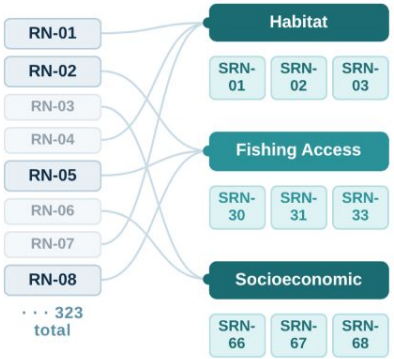
Individual research needs compiled from 17 research prioritization documents released by state, federal, fishing industry and regional management bodies.

11 categories

323 individual research needs

STEP 1

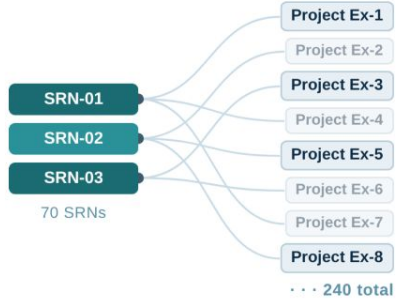
2 CONSOLIDATE INTO SUMMARIZED RESEARCH NEEDS (SRN)



323 individual research needs → **70** summarized research needs

STEP 2

3 MATCH RESEARCH PROJECTS TO SRNS



70 summarized research needs ↔ **240** research & monitoring projects

STEP 3

4 GAPS ANALYSIS SCORE

UNDER EXPLORATION

One or more projects address this summarized research need.

RESEARCH GAP

No projects identified — representing an unaddressed research need.

STEP 4

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PEER REVIEW
Summer 2025

Research Gaps Analysis Process

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323 individual research needs

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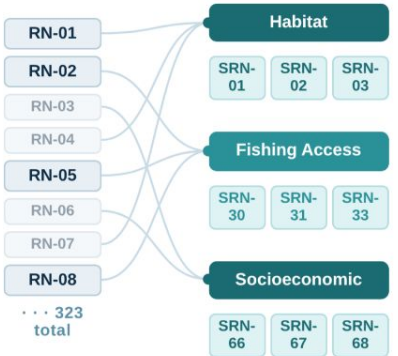

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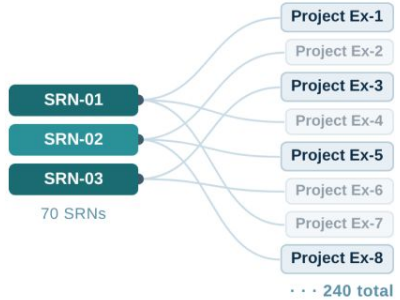

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RESEARCH GAP

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STEP 4

ROSA

Research Need Coverage Across Categories

Research Category	SRNs	Unaddressed Needs	Indiv. Projects Addressing SRNs
Cumulative Impacts & Fisheries Management Implications	5	3	15
Data Management	4	0	10
Regional Resource Monitoring	5	2	18
Species Distribution/Composition	3	0	68
Habitat Fragmentation/Modification	18	2	59
Electromagnetic Fields (EMF)	4	0	11
Sound/Vibration Impacts	5	0	15
Fisheries Engagement & Capacity Building	4	0	3
Fishing Access	6	0	38
Socioeconomic & Sociocultural Impact	11	0	26
Survey Adaptation	5	1	16
TOTAL	**70 SRNs**	8 Gaps	

RESEARCH GAPS

1. Cumulative Impact Assessment Framework/Guidance
2. Policy Alignment Across Ocean Sectors Relative to Offshore Wind Fisheries Science Objectives
3. Risk and Mitigation for Councils/Commissions
4. Use of Monitoring to Evaluate Effectiveness of Mitigation Strategies
5. Decommissioning Effects
6. Changes to Light Conditions
7. Development of Interim Provisional Survey Indices
8. New Fishery Observer Protocols to Address Questions

**based on projects included in FishFORWRD*

4 GAPS ANALYSIS SCORE

UNDER EXPLORATION

One or more projects address this summarized research need.

RESEARCH GAP

No projects identified — representing an unaddressed research need.

No Research Needs are Considered Addressed

Under Exploration ≠ Solved

- Species-limited
- Region-limited
- Method-limited

Gap ≠ No knowledge exists

Gap ≠ Priority

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Interpretation of Results

- Individual research needs, spanning both general and highly specific research questions, were **intentionally consolidated into broader SRNs**, meaning that even an "explored" SRN may have components that remain entirely unstudied
- Gaps Analysis assesses research coverage, but **does not fully consider research conclusions**
- **No ranking or prioritization is implied** by the score of each SRN or by the number of projects assigned to it.
- Gaps Analysis **reflects available and reported data** at the time of review.

****Last FishFORWRD Update: October 2025**

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Research Gaps Analysis

Results by Research Category

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
1		GAP
2		#
3		
4		
5		
Individual Projects Addressing SRN		#

Example Information

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SRN-ID	Summarized Research Need (SRN)	Projects Addressing
1		GAP
2		#
3		
4		
5		
Individual Projects Addressing SRN		#

Peer Review Insights

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Cross-Cutting + Systems
Cumulative Impacts & Fisheries Mnmgt
Data Management
Regional Resource Monitoring
Impact Producing Factors (IPFs) & Ecological Changes
Species Distribution /Composition
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Cross-Cutting + Systems

Cumulative Impacts & Fisheries Mnmgt

Data Management

Regional Resource Monitoring

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
1	Cumulative Impact Assessment Framework/Guidance	GAP
2	Cumulative Impact Assessments	9
3	Policy Alignment Across Ocean Sectors Relative to Offshore Wind Fisheries Science Objectives	GAP
4	Priority Data Needs and Impacts for Stock Assessment	6
5	Risk and Mitigation for Councils/Commissions	GAP
	Individual Projects Addressing SRN	15

Cumulative Impacts & Fishery Management Implications

This category encompasses two related, but distinct research needs:

(1) understanding the ***effects of multiple offshore wind projects accumulating across spatial and temporal scales****.*

(2) ***translating understanding of offshore wind impacts into fisheries science and management decision making****.*

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SRN-ID	Summarized Research Need (SRN)	Projects Addressing
1	Cumulative Impact Assessment Framework/Guidance	GAP
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2	Cumulative Impact Assessments	
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	Individual Projects Addressing SRN	15

Contributing Research Needs

- *spatial and temporal scales*
- *fishery-level impacts*
- *ecosystem-level impacts*
- *inclusion of greenhouse gas analyses*
- *the adaptive capacity of fisheries*
- *disentangling environmental variability*

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	Individual Projects Addressing SRN	15

Project Examples

*Ex-46: **Surfclam** Fishing and Windfarms in the Future Ocean: Interactive effects of wind farms and future ocean conditions on the surfclam fishery*

*Ex-80: Assessing Cumulative Impact of Offshore Wind Energy Development on **Sea Scallop Laval Transport** and Settlement in Southern New England Waters*

*Ex-70: **Gulf of Maine** Integrated Ecosystem Assessment*

ROSA

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Each of the research categories ultimately supports cumulative impact questions, *contributing a component (e.g., data, modeling frameworks, or conceptual understanding)*

Peer review panels consistently returned to the question of how individual stressors affect fisheries resources and communities at broader scales

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Individual Projects Addressing SRN		15

Project Examples

Ex-86: Evaluate Offshore Wind Farm ***Impacts to Mid-Atlantic Fishery Stock Assessment***

Ex-48: Understanding Economic Impacts to the Commercial ***Surfclam*** *Fishing Industry from Offshore Wind Energy*

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	Individual Projects Addressing SRN	15

Supporting Research in Other Research Categories

SRN-4: Priority Data Needs and Impacts for Stock Assessment

SRN-67: Impacts on Fisheries-Independent Surveys (Survey Adaptation)

SRN-49: Spatial and Temporal Change in Fishing Behavior (Fishing Access)

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4	Priority Data Needs and Impacts for Stock Assessment	6
5	Risk and Mitigation for Councils/Commissions	GAP
	Individual Projects Addressing SRN	15

Selected Peer Review Insights

- *Time invested in **defining CIA questions and objectives** is well spent, to define what should be included in an assessment and boundaries for the assessment*
- *Determination of **"significant"** impact may be better **decided by regulatory authorities***
- ***Scale of assessment is critical**; consideration should be given to how assessment scales can mask localized impacts*

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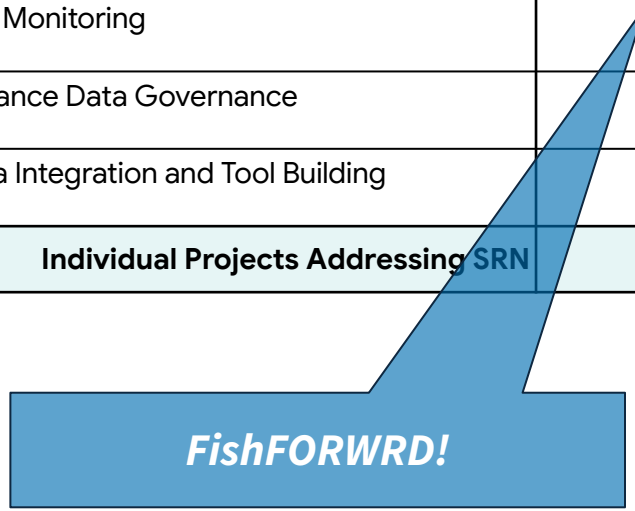
SRN-ID	Summarized Research Need (SRN)	Projects Addressing
6	Enhance Application of Fishery Dependent Data	5
7	Centralized Database of Ongoing Research and Monitoring	1
8	Enhance Data Governance	3
9	Data Integration and Tool Building	3
Individual Projects Addressing SRN		10



Data Management

*Efforts to **organize, store, manage, and/or create increased utility** for offshore wind fisheries data for cumulative impacts assessments and fisheries management*

Separation of fishery-dependent and fishery independent data

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	Individual Projects Addressing SRN	10

200+ projects in FishFORWRD

Wide range of actors in data collection and analysis

*Data governance develops and **provides** consistent **policies, processes, tools,** and technical implementation practices that can increase data value through expanded usability and usefulness.*

ROSA

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9	Data Integration and Tool Building	3
	Individual Projects Addressing SRN	10

200+ projects in FishFORWRD

Wide range of actors in data collection and analysis

Project Example

Ex-165: RWSC Planning Map

Peer Review Insight

Addressing Data Management needs supports all research categories and the interoperability across them.

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SRN-ID	Summarized Research Need (SRN)	Projects Addressing
10	Design and Evaluate Strategies for Regional Scale Monitoring	10
11	Data Integration Across Methods to Model Species Distribution and Movement	2
12	Regional Acoustic Receiver Array	6
13	Use of Monitoring to Evaluate Effectiveness of Mitigation Strategies	GAP
14	Use of Historical Datasets to Generate Baselines	2
	Individual Projects Addressing SRN	18

Regional Resource Monitoring

*The design and integration of monitoring **systems that support long-term, regional-scale understanding** of marine resources.*

***NOT direct data collection*

Emphasizes the development of monitoring frameworks, shared infrastructure, data integration approaches

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	Individual Projects Addressing SRN	18

Project Examples

Ex-175: ROSA Offshore Wind Project Monitoring Framework and Guidelines

Ex-241: NOAA Draft Regional Standards for Offshore Wind Project-Level Monitoring

Ex-214: Small Effect Sizes Are Achievable in Offshore Wind Monitoring Surveys

Ex-79: Establishing Standard Methods to Assess the Biological Condition of Sea Scallops Before and After Offshore Wind Farm Development

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Selected Peer Review Insights

- *"Good COP, Bad COP."* ***SRN-13****: highlights the significant potential utility in enabling* ***systematic evaluation of Construction and Operations Plans (COPs) and associated mitigation measures.***
- ***Historical datasets*** *provide an opportunity to* ***strengthen baseline characterization*** *(SRN-14), particularly given the relatively short baseline periods required for offshore wind projects*

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Impact Producing Factors (IPFs) & Ecological Changes

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
15	Changes to Biological Indicators of Incidence, Local Abundance and Distribution, Habitat Suitability, and Community Structure	49
16	Changes to Growth, Feeding, Reproduction, Recruitment, and Mortality	6
17	Effects of Offshore Wind Development Phases on Spatial Behavior	21
	Individual Projects Addressing SRN	68

Species Distribution/Composition

Changes in target fish ***abundance, distribution, taxonomic composition, and or/behavior*** *as a direct or indirect result of offshore wind energy development phases.*

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Includes invasive species

Includes both horizontal & vertical movements

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	Individual Projects Addressing SRN	68

***45 projects** are developer funded project-level fisheries monitoring surveys*

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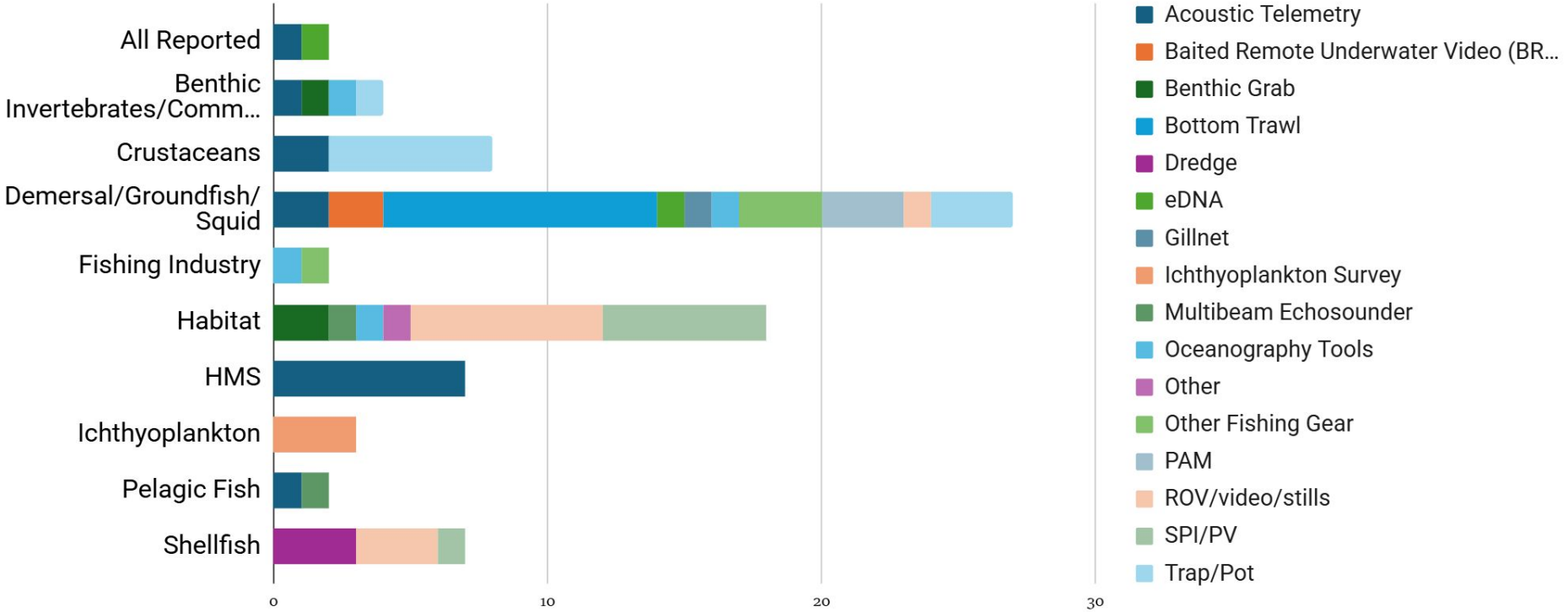
SRN-ID	Summarized Research Need (SRN)	Projects Addressing

***45 projects** are*



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Peer Review Insights

- *Offshore wind project-level fisheries monitoring surveys **may not clearly articulate the mechanisms responsible for observed changes***
- *Community-level composition should be given a greater emphasis in fisheries monitoring surveys - this category remains **largely species-centric**, particularly for telemetry studies*
- *reviewers recommended exploring more fine-scale, impact-focused studies and **greater coordination of survey design** across projects*

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18	Gradient of Change at Turbine/Farm Scale	6
19	Artificial Reef Effect on Fish	9
20	Decommissioning Effects	GAP
21	Thermal Effects of Offshore Wind Infrastructure	1
22	Local and Regional Changes to Ocean Hydrodynamics	10
23	Larval Transport and Recruitment Effects	9
24	Effects on Spawning Timing, Location, and Habitat Use	2
25	Colonization of Non-Native and Invasive Species	4
26	Changes in Trophic Interactions	4
27	Changes to Light Conditions	GAP
28	Effect of Artificial Substrate on Benthic and Epibenthic Community	9
29	Turbine Spacing and Connectivity of Fish Communities	3
30	Nature-Inclusive Design	4
31	Baseline Benthic and Water Column Habitat	15
32	Cable Installation Impacts	5
33	Cable Protection Impacts	2
34	Change in Water and Sediment Quality	1
35	Effects of Boulder Relocation	3
	Individual Projects Addressing SRNs	**59**

Habitat Fragmentation/ Modification

Physical and ecological changes to marine habitats *associated with offshore wind infrastructure and activities, including changes to habitat size, composition, structure, connectivity, or function.*

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Habitat Change
Habitat induced effects on fish
Infrastructure

ROSA

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Habitat induced effects on fish

Artificial Reef

- *Developer monitoring surveys (ventless trap, BRUV etc)*

Larval Effects

- *Fluke, scallop, black sea bass, surfclam, sand lance*

Spawning

- *Atlantic Cod*

Trophic

- *Community-level*

Connectivity

- *Black sea bass, striper, fluke, bluefish*

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32	Cable Installation Impacts	5
33	Cable Protection Impacts	2
34	Change in Water and Sediment Quality	1
35	Effects of Boulder Relocation	3
	Individual Projects Addressing SRNs	**59**

***26 projects** are developer funded project-level benthic monitoring surveys assigned to the research question(s) they address*

RWSC Habitat & Ecosystem Subcommittee

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
18	Gradient of Change at Turbine/Farm Scale	6
19	Artificial Reef Effect on Fish	9
20	Decommissioning Effects	GAP
21	Thermal Effects of Offshore Wind Infrastructure	1
22	Local and Regional Changes to Ocean Hydrodynamics	10
23	Larval Transport and Recruitment Effects	9
24	Effects on Spawning Timing, Location, and Habitat Use	2
25	Colonization of Non-Native and Invasive Species	4
26	Changes in Trophic Interactions	4
27	Changes to Light Conditions	GAP
28	Effect of Artificial Substrate on Benthic and Epibenthic Community	9
29	Turbine Spacing and Connectivity of Fish Communities	3
30	Nature-Inclusive Design	4
31	Baseline Benthic and Water Column Habitat	15
32	Cable Installation Impacts	5
33	Cable Protection Impacts	2
34	Change in Water and Sediment Quality	1
35	Effects of Boulder Relocation	3
	Individual Projects Addressing SRNs	**59**

Selected Peer Review Insights

- *highly localized impact assessments Reviewers emphasized the **value of comparative analyses across project** sites*
- *regional funders might consider focusing on questions not being addressed by required developer benthic monitoring*
- *Additional research is needed at **relocated boulder sites** to evaluate changes in structural complexity and **associated effects such as artificial reef formation and habitat connectivity***

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
36	Characterization of EMF Exposures for OSW	3
37	Characterization of EMF Effects for Fisheries Species	11
38	Population, Community and Ecosystem-level EMF Impacts to Fisheries	6
39	Ecological Risk Assessment Approaches, Methods, and Models	1
Individual Projects Addressing SRN		11

Electromagnetic Fields (EMF)

The effects of electromagnetic fields (EMF) on fisheries species and ecosystems, including ***interference with bioelectric and geomagnetic sensing marine organisms****. EMF is generated by cables that carry electricity from and between energy sources, such as wind turbines to power stations.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
36	Characterization of EMF Exposures for OSW	3
37	Characterization of EMF Effects for Fisheries Species	11
38	Population, Community and Ecosystem-level EMF Impacts to Fisheries	6
39	Ecological Risk Assessment Approaches, Methods, and Models	1
Individual Projects Addressing SRN		

New Need

offers a systematic, unifying framework for organizing existing EMF exposure and effects research and identifying the most consequential data gaps. By applying this type of framework through targeted case studies, managers and researchers can sift through research findings, evaluate the strength of evidence across stressors, and determine additional research to best support decision-making.

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
36	Characterization of EMF Exposures for OSW	3
37	Characterization of EMF Effects for Fisheries Species	11
38	Population, Community and Ecosystem-level EMF Impacts to Fisheries	6
39	Ecological Risk Assessment Approaches, Methods, and Models	1
	Individual Projects Addressing SRN	11

Literature Reviews

Ex-2: Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England

Ex-201: Electromagnetic Fields: Background and Potential Impacts of Offshore Wind Farms on Marine Organisms

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
36	Characterization of EMF Exposures for OSW	3
37	Characterization of EMF Effects for Fisheries Species	11
38	Population, Community and Ecosystem-level EMF Impacts to Fisheries	6
39	Ecological Risk Assessment Approaches, Methods, and Models	1
	Individual Projects Addressing SRN	11

Field studies limited to export cable route surveys, *exclusively conducted under offshore wind developer fisheries monitoring plans*

Ex-106: South Fork Export Cable Route Trawl Survey

Ex-107: South Fork Export Cable Route Telemetry Studies

Ex-120: Revolution Wind State Water Ventless Trap Survey - Export Cable

Ex-129: Sunrise Wind Export Cable Acoustic Telemetry Studies - Lobster, Horseshoe Crab).

acoustic telemetry, bottom trawl, and pot gear

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
36	Characterization of EMF Exposures for OSW	3
37	Characterization of EMF Effects for Fisheries Species	11
38	Population, Community and Ecosystem-level EMF Impacts to Fisheries	6
39	Ecological Risk Assessment Approaches, Methods, and Models	1
Individual Projects Addressing SRN		11

Selected Peer Review Insights

- *Research progress remains **constrained by the limited amount of laboratory-based work**, including controlled exposure and dose-response studies that can isolate behavioral or physiological mechanisms*

- ***Minor biological or behavioral effects may occur at the individual cable scale**, but assessment should consider: **what are the cumulative effects of repeated/chronic exposure over the broader regional scale** of EMF producing offshore wind infrastructure (i.e., multiple projects, multiple cables)?*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
40	Characterization of Sound Pressure, Motion and Seabed Vibration	8
41	Effects of Offshore Wind Sound on Behavior and Physiology of Fish and Shellfish	12
42	Alteration of Natural Soundscape	6
43	Strategies for Mitigation from Sound and Vibration Impacts	1
44	Population, Community and Ecosystem-level Impacts from Sound Pressure, Particle Motion and Seabed Vibration	2
Individual Projects Addressing SRN		15

Sound/Vibration Impacts

The effects of underwater sound and vibration (includes both sound pressure and particle motion) on fisheries species and ecosystems, including ***potential behavioral, physiological, and ecological responses****. Sound and vibration are generated during offshore wind site characterization, construction, and operation and can be sensed by organisms using hearing, the lateral line in fishes, and/or depth regulating organs.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
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42	Alteration of Natural Soundscape	6
43	Strategies for Mitigation from Sound and Vibration Impacts	1
44	Population, Community and Ecosystem-level Impacts from Sound Pressure, Particle Motion and Seabed Vibration	2
Individual Projects Addressing SRN		15

Laboratory

Ex-170: Sound sensitivity of the giant scallop (Placopecten magellanicus) is life stage, intensity, and frequency dependent

Field Efforts

Ex-202: Impulsive pile driving sound does not induce hearing loss in the longfin squid (Doryteuthis pealeii)

Ex-105: South Fork Wind Spawning Cod Monitoring

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
40	Characterization of Sound Pressure, Motion and Seabed Vibration	8
41	Effects of Offshore Wind Sound on Behavior and Physiology of Fish and Shellfish	12
42	Alteration of Natural Soundscape	6
43	Strategies for Mitigation from Sound and Vibration Impacts	1
44	Population, Community and Ecosystem-level Impacts from Sound Pressure, Particle Motion and Seabed Vibration	2
Individual Projects Addressing SRN		15

Selected Peer Review Insights

- *Scales of research*
  - *characterization of the offshore wind sound itself > on animals*
  - *Population-level impacts > aligned with management decisions*
- *Potential research gap exists related to* ***operational****-phase offshore wind noise*
- ***Offshore wind construction activities have already occurred or are occurring****. There is a need to assess whether* ***population- or community-level effects from sound and vibration are observable*** *to date, and* ***whether existing monitoring programs are designed to detect*** *such effects.*

ROSA

Fisheries Impacts & Responses

Fisheries Engagement & Capacity Building

Fishing Access

Socio Economic & Socio Cultural

Survey Adaptation

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
45	Strategies, Resources, and Mechanisms for Building Capacity Across Sectors	2
46	Qualitative Analysis Informing Effective Fishery Stakeholder Engagement	1
47	Local Ecological Knowledge Methodology Development and Integration	1
48	Social Networking and Knowledge Sharing	1
Individual Projects Addressing SRN		3

Fisheries Engagement & Capacity Building

*Methodology for **bidirectional exchange of information** between the commercial and/or recreational fishing communities, agency representatives, and offshore wind developers. Capacity building refers to the process of **obtaining or improving the knowledge or skills needed to participate effectively** in the offshore wind development process and/or understand science and management around fisheries and offshore wind.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
45	Strategies, Resources, and Mechanisms for Building Capacity Across Sectors	2
46	Qualitative Analysis Informing Effective Fishery Stakeholder Engagement	1
47	Local Ecological Knowledge Methodology Development and Integration	1
48	Social Networking and Knowledge Sharing	1
Individual Projects Addressing SRN		3

Ex-22: Evaluating Messaging, Communication Networks, And Public Engagement On Offshore Wind Development In Southern New England

Ex-9: Fostering Capacity for Fishing Communities to Engage Effectively and Constructively in Offshore Wind Development in the Gulf of Maine

Ex-89: Creation of a Data Trust to Include Fishermen's Knowledge in Offshore Wind Energy Decision Making

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
45	Strategies, Resources, and Mechanisms for Building Capacity Across Sectors	2
46	Qualitative Analysis Informing Effective Fishery Stakeholder Engagement	1
47	Local Ecological Knowledge Methodology Development and Integration	1
48	Social Networking and Knowledge Sharing	1
Individual Projects Addressing SRN		3

Peer Review Insights

- *While the importance of engagement and capacity building is widely acknowledged, this **category remains relatively lightly explored** compared to others, and additional research and applied investment may be needed to better understand which engagement approaches are most effective across regions, fisheries, and development contexts.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
49	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior	16
50	Spatial Operation Needs Within and Around Wind Farms	10
51	Gear Modification, Fisheries Enhancement, and Other Fisheries Development to Allow Co-Use	10
52	Fishing Interaction with Cable Protection Measures	1
53	Impacts of Boulder Relocation on Fishing	1
54	Navigation and Safety	3
Individual Projects Addressing SRN		38

Fishing Access

Changes to commercial and recreational fishing access and operation *within and around offshore wind farms, including gear development to maintain access, safety considerations, displacement and/or changes in location and timing of commercial and recreational fishing efforts, and the topic of Fisheries Enhancement as a mitigation tool.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
49	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior	16
50	Spatial Operation Needs Within and Around Wind Farms	10
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54	Navigation and Safety	3
	Individual Projects Addressing SRN	38

broad spatial and temporal scales, focused on understanding ***how fishing activity may shift regionally*** *in response to offshore wind development*

how changes in fishing behavior may accumulate across space and time and how outcomes differ for recreational and commercial fishing.

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
49	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior	16
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	Individual Projects Addressing SRN	38

*addresses more **localized, operational impacts***

*practical requirements for fishing within constrained spatial environments, including vessel- and gear-specific considerations, and encompasses research needs related to both needed **empirical studies** and **perceived risk and decision-making***

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
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53	Impacts of Boulder Relocation on Fishing	1
54	Navigation and Safety	3
Individual Projects Addressing SRN		38

Ex-74: Using fine-scale fishery data to evaluate and predict the potential impact of offshore wind energy development on fishery operations

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
49	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior	16
50	Spatial Operation Needs Within and Around Wind Farms	10
51	Gear Modification, Fisheries Enhancement, and Other Fisheries Development to Allow Co-Use	10
52	Fishing Interaction with Cable Protection Measures	1
53	Impacts of Boulder Relocation on Fishing	1
54	Navigation and Safety	3
Individual Projects Addressing SRN		38

Fixed-bottom offshore wind

Ex-215:Spatial analysis of fishing tows with Automatic Identification System (AIS) data to inform offshore wind layouts

Floating offshore wind

Ex-37: Co-Design Solutions for U.S. Floating Offshore Wind Farms and Fishing Compatibility

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
49	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior	16
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53	Impacts of Boulder Relocation on Fishing	1
54	Navigation and Safety	3
	Individual Projects Addressing SRN	38

8 out of 10 projects support surfclam fisheries enhancement

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
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	Individual Projects Addressing SRN	38

Selected Peer Review Insights

- ***Cable protection measures*** *and* ***boulder relocation*** *were repeatedly identified as priority concerns for the fishing community*
- ***Navigation and Safety research is crucial*** *particularly operational safety risks associated with weather conditions*
- ***there is now a meaningful opportunity*** *to more effectively investigate many of the research questions within this category using real-world conditions and observed fishing activity.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
55	Secondary and Tertiary Effects to Supply Chains and Supporting Businesses	3
56	Marine Spatial Planning and Use Tradeoffs	2
57	Approaches to, Data Inputs for, and Assessment of Compensatory Mitigation Programs	3
58	Costs and Benefits Associated with Recreational Fishing	6
59	Impacts on Commercial Fishermen's Occupational Structure, Labor Markets, and Workforce	11
60	Methods for Evaluating Socioeconomic/Sociocultural Impact	5
61	Impacts on Seafood Value, Marketability, and Quality	4
62	Changes to Vessel Insurance Costs and Availability	1
63	Offshore Wind Interaction with Fisheries Infrastructure in Ports	1
64	Effects on Cultural Identity, Individual Well-Being, Place Attachment, and the Social Fabric of Fishing Communities	4
65	Fishing Community Environmental Justice Concerns	1
	Individual Projects Addressing SRN	26

Socioeconomic & Sociocultural Impact

Changes to the economic value *of commercial and recreational fishing industries,* ***effects to shoreside infrastructure****, and* ***social and cultural changes in fishing communities*** *due to offshore wind development.*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
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Socioeconomic & Sociocultural Impact

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	Individual Projects Addressing SRN	26

Some Regional Projects

Ex-139: Assessing stranded capital and capital devaluation in the seafood industry due to offshore wind energy development

Ex-69: Socioeconomic Impacts of Atlantic Offshore Wind Development

Species specific

Surfclam and Sea Scallop

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
55	Secondary and Tertiary Effects to Supply Chains and Supporting Businesses	3
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65	Fishing Community Environmental Justice Concerns	1
	Individual Projects Addressing SRN	26

*Sociocultural research has been most concentrated in the **Gulf of Maine**, followed by Southern New England*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
55	Secondary and Tertiary Effects to Supply Chains and Supporting Businesses	3
56	Marine Spatial Planning and Use Tradeoffs	2
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	Individual Projects Addressing SRN	26

Selected Peer Review Insights

- *Port-level, community-level, and secondary market impacts remain largely unexplored*
- *Overall, the SRNs in this research category are incredibly important and addressing these questions across multiple fisheries and regions will **require significant, sustained investment***
- *To increase actionability of results, funders should require early engagement with management and regulatory bodies*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
66	Alternate and Advanced Technologies and Survey Techniques	11
67	Impacts on Fisheries-Independent Surveys	5
68	Development of Interim Provisional Survey Indices	GAP
69	Project-Level Monitoring Data to Fill Regional Scientific Survey Data Needs	1
70	New Fishery Observer Protocols to Address Questions	GAP
Individual Projects Addressing SRN		16

Survey Adaptation

Alteration or creation of new survey methodology *to allow for fisheries data collection within and around offshore wind farms.*

***Economic data collection and associated survey-improvement research needs are within the Socioeconomic & Sociocultural Impacts category*

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
66	Alternate and Advanced Technologies and Survey Techniques	11
67	Impacts on Fisheries-Independent Surveys	5
68	Development of Interim Provisional Survey Indices	GAP
69	Project-Level Monitoring Data to Fill Regional Scientific Survey Data Needs	1
70	New Fishery Observer Protocols to Address Questions	GAP
Individual Projects Addressing SRN		16

Developer monitoring plans

Ex-148: Vineyard Wind 1 Video Trawl Survey - Pilot Study

Pilots of new NOAA surveys

Ex-71: Trap Video Survey Mitigation Plan

Ex-72 Hook and Line Survey Mitigation Plan

Ex-73: eDNA Survey Mitigation Plan.

ROSA

SRN-ID	Summarized Research Need (SRN)	Projects Addressing
66	Alternate and Advanced Technologies and Survey Techniques	11
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69	Project-Level Monitoring Data to Fill Regional Scientific Survey Data Needs	1
70	New Fishery Observer Protocols to Address Questions	GAP
Individual Projects Addressing SRN		16

Peer Review Insights

Project-level monitoring cannot independently replace NMFS surveys *to answer population-level questions. Reviewers noted, however, a* ***strong potential*** *for spatiotemporal* ***integration of high-density offshore wind monitoring datasets into regional resource assessments and scientific analyses****, which could significantly enhance the resolution and interpretability of regional monitoring programs.*

ROSA

In Summary

Across categories, a consistent theme emerges:

project-level research is accumulating rapidly, but translating that work into regional-scale cumulative impact assessments, standardized monitoring frameworks, and actionable fisheries management guidance remains an urgent and largely unmet need.

FISH AND FISHERIES
OFFSHORE WIND
RESEARCH GAPS ANALYSIS
U.S. ATLANTIC COAST

FINAL REPORT

MARCH 2026

ROSA
Responsible Offshore Science Alliance

Contents

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Next Steps

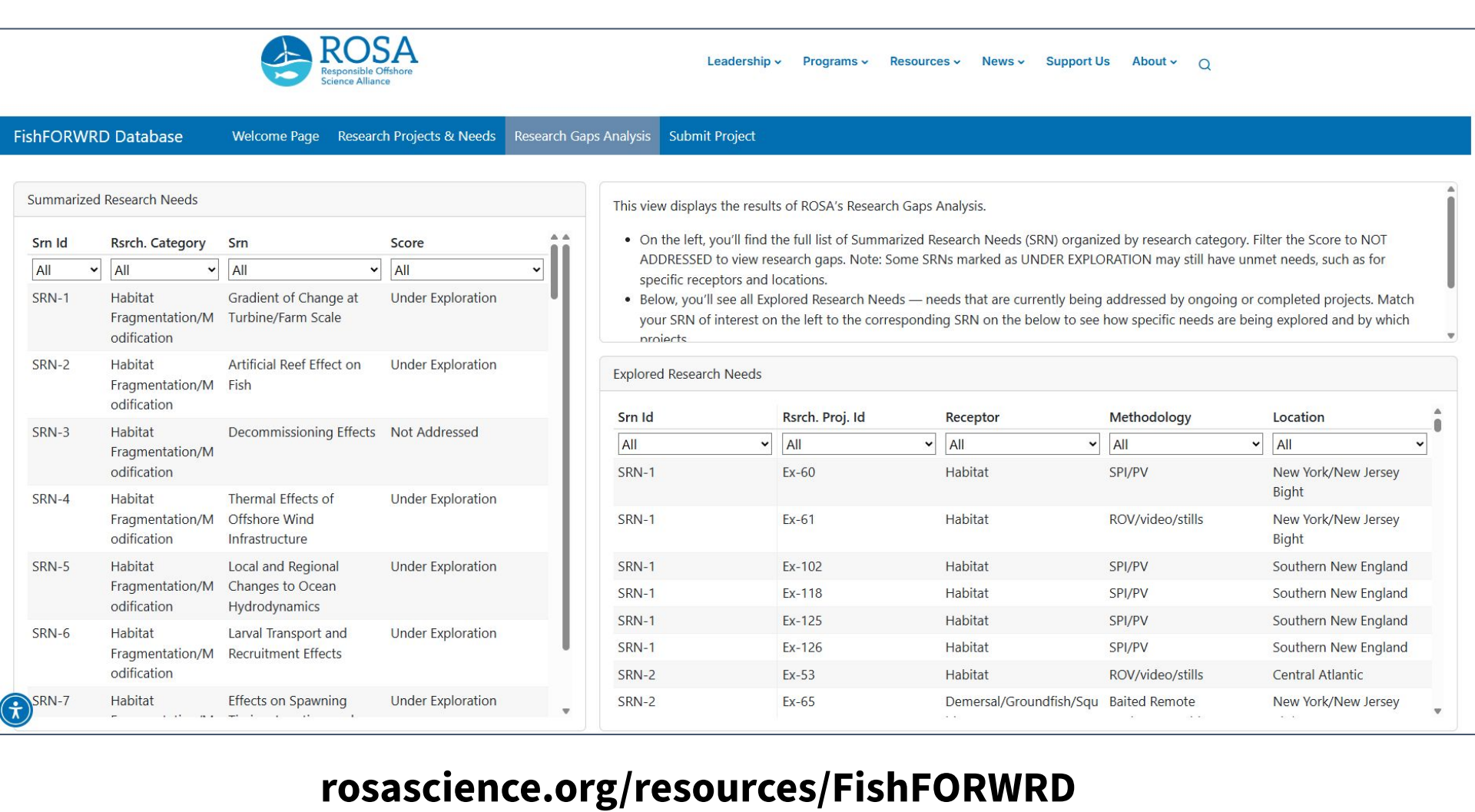
Update FishFORWRD

- Final Research Gaps Analysis Results
- Including new projects that have been funded since analysis

Submit your research!!

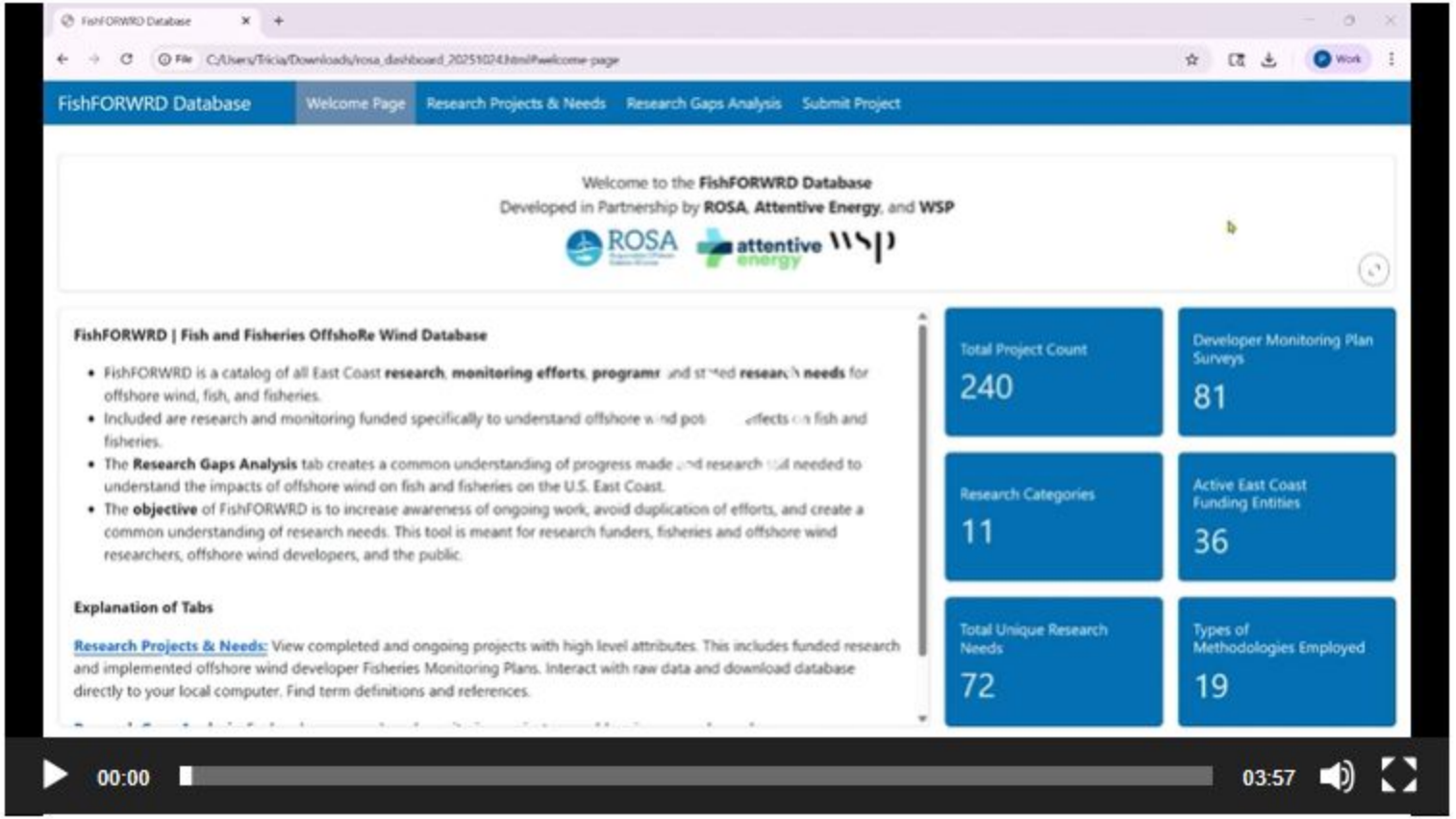
At the QR on “Submit Project” tab in FishFORWRD

ROSA



rosascience.org/resources/FishFORWRD

Below is a short video on how to use the tool.



rosascience.org/resources/FishFORWRD

Diving Deeper Into Results

The State of Offshore Wind Fisheries Science on the U.S. Atlantic Coast

webinar series launching this year

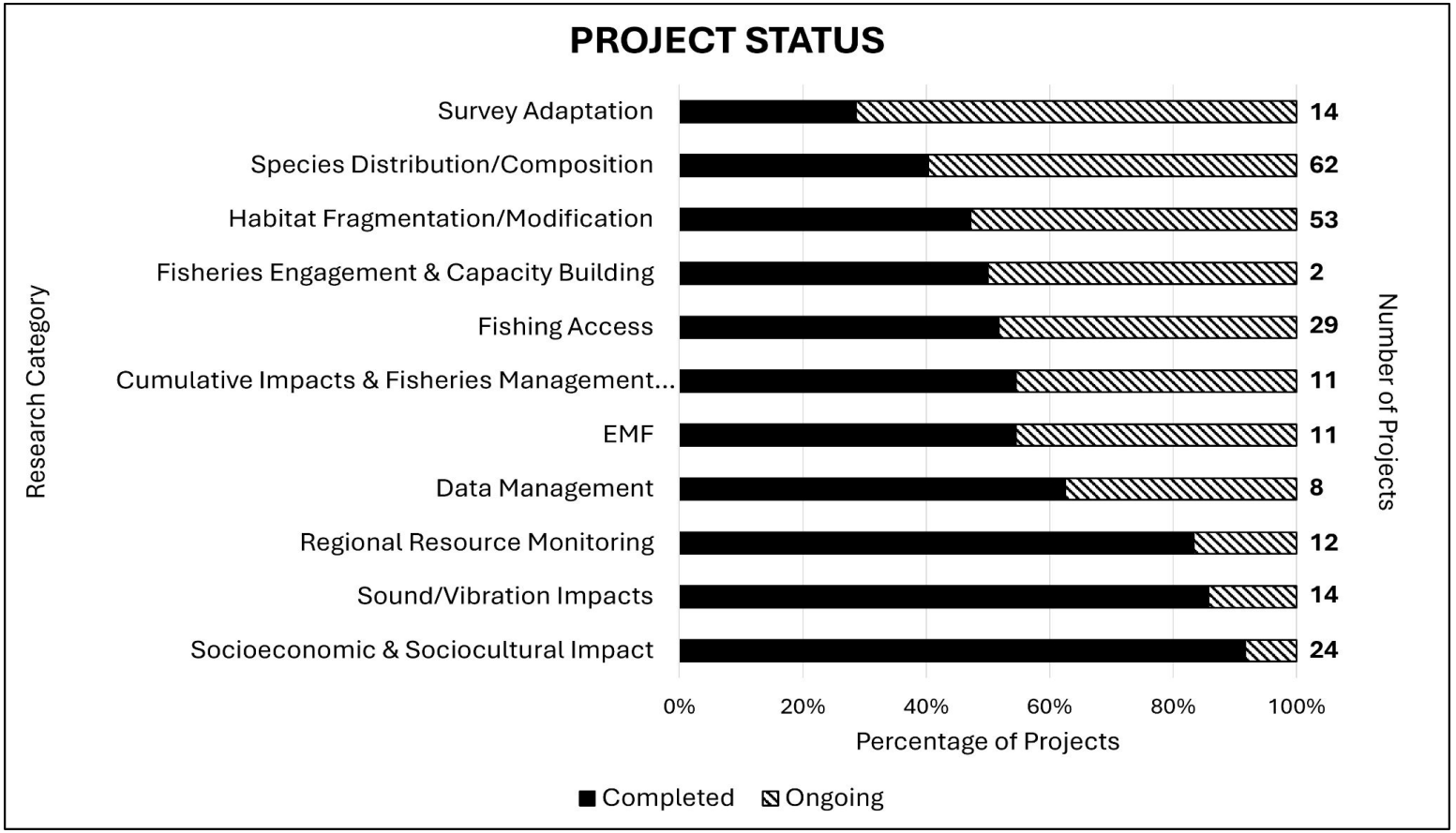
The Gaps Analysis assesses research coverage, but does not capture what that research has found to date.

Webinar series will **synthesize and share *findings*** from completed and mature projects mapped to research needs important to the ROSA Community.

- inform funder coordination and future research proposals
- inform all on key findings, what we have learned, and the limitations and remaining uncertainties

ROSA

Survey: What research category should we dive into first?



LAUNCH POLL

ROSA

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