



ROSA
Responsible Offshore
Science Alliance



FishFORWRD: A Multi-Purpose Tool for Offshore Wind Fisheries Research

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Offshore Wind, Fish, and Fisheries
Emerging Knowledge and Applications - Day 2
September 19, 2024

Leading Regional Research on Offshore Wind & Fisheries



SCIENTIFIC
OBJECTIVE
COLLABORATIVE
TRANSPARENT

Mission:

We **advance research, monitoring, and methods** on the effects of **offshore wind energy development on fisheries** across US waters.

We serve as an objective resource for all sectors and facilitate the coordination of regional scientific research to collaboratively and efficiently deepen understanding.

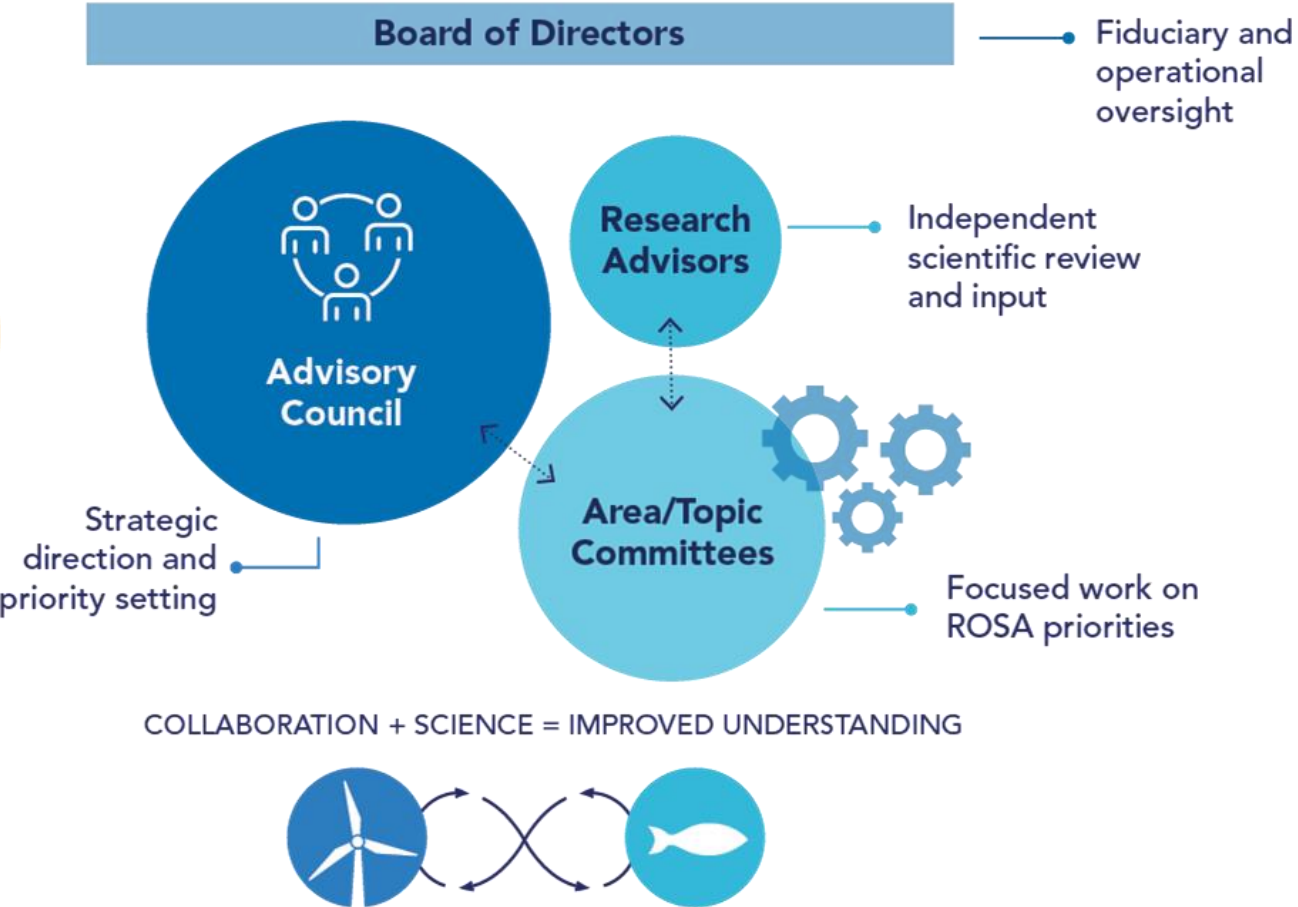
Inception:

Formed in early 2019 as a 501(c)3

Partnership between RODA & OSW developers



ROSA's Organizational Structure



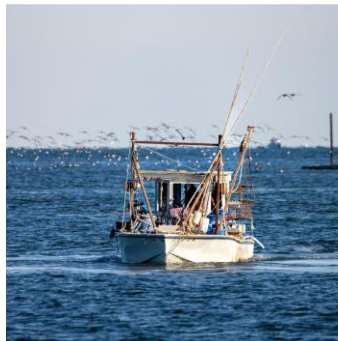
*Tribal Nation representation TBD

Strategic Plan – 3 Key Objectives



Administer Regional
OSW Fisheries
Research &
Monitoring

Facilitate Assessment
of Regional &
Cumulative Impacts



Build Coordination
Through Engagement

Strategic Plan – Key Objectives



Administer Regional OSW Fisheries Research & Monitoring

Facilitate Assessment of Regional & Cumulative Impacts



Build Coordination Through Engagement

FishFORWRD

OSW Fisheries Research Funder Coordination

Regional RFP Process

Project Awarding & Management



FishFORWRD



FishFORWRD | Fish and Fisheries OffshoRe Wind Research Database

Objective

increase awareness of ongoing work

avoid duplication of efforts

create a common understanding of research needs

Contents

Research Projects

- Research projects funded by federal agencies, state agencies, non-profits, etc.
- Implemented Developer Fisheries Monitoring Plans

Research Needs

- Individual research needs from 17 different published documents by federal agencies, states agencies, and public-private partnerships

Research Gaps Analysis (in development)

Research Categories



Habitat Fragmentation/Modification



Socioeconomic Impact



Cumulative Impacts



Sound/Vibration Impacts



Species Distribution/Composition



EMF



Fisheries Access & Gear Modification



Fisheries Engagement & Capacity Building



Survey Adaptation



Data Management



Resource Monitoring

FishFORWRD | Fish and Fisheries OffshoRe Wind Research Database



Other Attributes

Developer Fisheries Monitoring Plan (Y/N)
Fixed or Floating
Wind Farm Development Phase
Spatial Scale
Location
Project Title
Lead Entity
Partner Entities
PI Name
Project Objectives
Methodology
Receptor
Project Start
Est. Project End
Funder
Funding Partners
Project Website

FishFORWRD v1.0 – Sept 2022



Purpose and Background: ROSA Fish and
The overall purpose of this tool is to provide an overview of the offshore wind development from Maine to the Gulf of Mexico. The tool is not yet fully addressed in the Research Needs Database (RND) (research institutions) to filter/sort Research Needs (RN) from a relational database and to provide the following:

1. Example of process for filtering spreadsheet

Tier 1: Filtering of identified needs

Species/Type

Overview

Tab #/Name	Purpose
Overview	Orient the user to the layout and process used to create each tab.
1. Existing Research Projects	Catalogs existing research and identified research need

Overview

1 Introduction to Pivot Tables:

Pivot tables can be useful tools for summarizing datasets and identifying trends. For the Fisheries Offshore Wind Research Database, it can be used to identify topics and locations where most research is being done, areas that need more research, and major partnering institutions.

The pivot tables to the right are overviews of identified Research Needs by level of completeness and scale and Existing Projects by location

8 How to Create Unique Pivot Table:

1. To create a pivot table, click 'Insert', then 'PivotTable'

2. Select all the data in either Tab '1. Existing Projects' or '2. Identified Research Needs' except the top row and choose whether you want the PivotTable to display within this tab or in a new tab on its own.

3. Excel will create a blank pivot table. Choose which categories you would like to use as identifiers to organize your pivot table in the order of broadest, to most narrow based on desired outcome by checking the box next to the column/category name (e.g., to focus on a particular location, scale, or stage of project development, choose "Location", "Scale", or "Windfarm Development Stage"). To focus on subject, choose "Identified Research Need", "Identified Research Need2", and "Identified Research Need3". In order to be able to identify specific research needs, check "Research Need ID Number" and ensure it is last in the Rows list.

4. To get totals, choose a category you would like values for. For example, if you want a look at the number of research needs in each location that are not addressed, partially addressed, or fully addressed, drag "Data Gap Analysis Score" to the values box and make sure it is set to "sum." This will provide totals for each category. Another example would be the total research needs by scale or development stage.

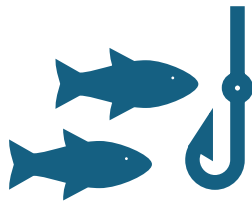
Table 1. Number and Subject of Research Needs and Their Level of Completeness

Count of Data Gap Analysis Score	Column Labels				Grand Total
	Row Labels	Not Addressed	Partially Addressed	(blank) Adequately Addressed	
Fish		81	57		138
EMF Impacts		14	10		24
Fishery Access		1			1
Habitat Fragmentation/Modification		30	15		45
Other		1	1		2
Resource Monitoring		6	6		12
Sound/Vibration Impacts		7	2		9
Species Distribution/Composition		20	23		43
Cumulative Impacts		1			1
Heat Impacts		1			1
Fisheries		25	30	1	56
Economic Impact			6		6
EMF Impacts		1	2		3
Fishery Access		7	9		16
Fishing Industry Communication		1	1		2
Habitat Fragmentation/Modification		3	1		4
Other		2			2
Resource Monitoring			2		2
Sound/Vibration Impacts		1	8	1	10
Species Distribution/Composition		1	1		2
Community Engagement		1			1
Cumulative Impacts		2			2
Infrastructure Impacts		6			6
Other		22	10		32
Habitat Fragmentation/Modification		14	1		15
Resource Monitoring			1		1
Sound/Vibration Impacts		3	1		4
Species Distribution/Composition		1	2		3
Changes in Light Level		1			1

Table 2. Count of Research Needs

Count of Data Gap Analysis Score	Row Labels
	Changes in Light Level
	RN-1
	Community Engagement
	RN-3
	Cumulative Impacts
	RN-10
	RN-11
	RN-12
	RN-13
	RN-152
	RN-4
	RN-5
	RN-6
	RN-7
	RN-8
	RN-9
	Economic Impact
	RN-14
	RN-15
	RN-16
	RN-17
	RN-2
	RN-50
	EMF Impacts
	RN-18
	RN-19
	RN-20
	RN-21
	RN-213

FishFORWRD v2.1.0 | Rebuild & Relaunch



**New Research Projects
& Developer Fisheries
Monitoring Plan Surveys**



New Research Needs



New Webtool

Offshore Wind & Fisheries Funder Coordination

First Meeting: May 28, 2024

Objective: Gather funding entities (federal, state, & non-profit) on the east coast to coordinate research & monitoring funds for fisheries & OSW.



Implemented Developer Fisheries Monitoring Plans



As part of the siting, design, and permitting process for offshore wind projects, **BOEM and some states require developers to prepare various project monitoring plans to characterize, evaluate, and monitor the potential impacts** to affected physical and biological resources (fisheries, benthic/habitat, protected species, etc.) and fishing operations from proposed offshore wind development – this includes **Fisheries Monitoring Plans & Benthic Monitoring Plans**.

These project monitoring plans and associated studies help provide the scientific information BOEM and other agencies need to **determine how wind farms may affect marine resources**.

Met with each developer to ensure complete and correct information for each survey within the Fisheries & Benthic Monitoring Plans

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.

FishFORWRD v2.1.0 – July 2024



Welcome to the **FishFORWRD Database**
Developed in Partnership by **ROSA**, **Attentive Energy**, and **WSP**



Purpose of this Database

FishFORWRD is a catalog of all East Coast research, monitoring efforts, and stated research needs for offshore wind, fish, and fisheries. This database differentiates ongoing projects funded to examine offshore wind interactions from other programs that provide valuable data, but which haven't necessarily been designed to assess offshore wind impacts. The objective of FishFORWRD is to increase awareness of ongoing work, avoid duplication of efforts, and create a common understanding of research needs. This tool is meant for research funders, fisheries and offshore wind researchers, offshore wind developers, and the public.

How to use this Dashboard

This dashboard is comprised of a number of tabs, each with their own purpose and functionality with features to help you explore page content or visuals. All tables and plots are interactive and can be manipulated via the mouse. Use this dashboard to explore completed and ongoing research and monitoring efforts, explore research needs expressed by our community, understand which research needs have been funded and are under exploration (under development), and which research gaps still remain (under development). Filter projects and research needs by location, research category, methodology used, funder and more.

Total Project Count

170

Implemented Developer
Fisheries Monitoring

Surveys
73

Total Unique Research
Categories

11

Active East Coast
Funding Entities

25

Total Identified Needs

324

Types of
Methodologies Employed

18



[Explanation of Tabs](#)

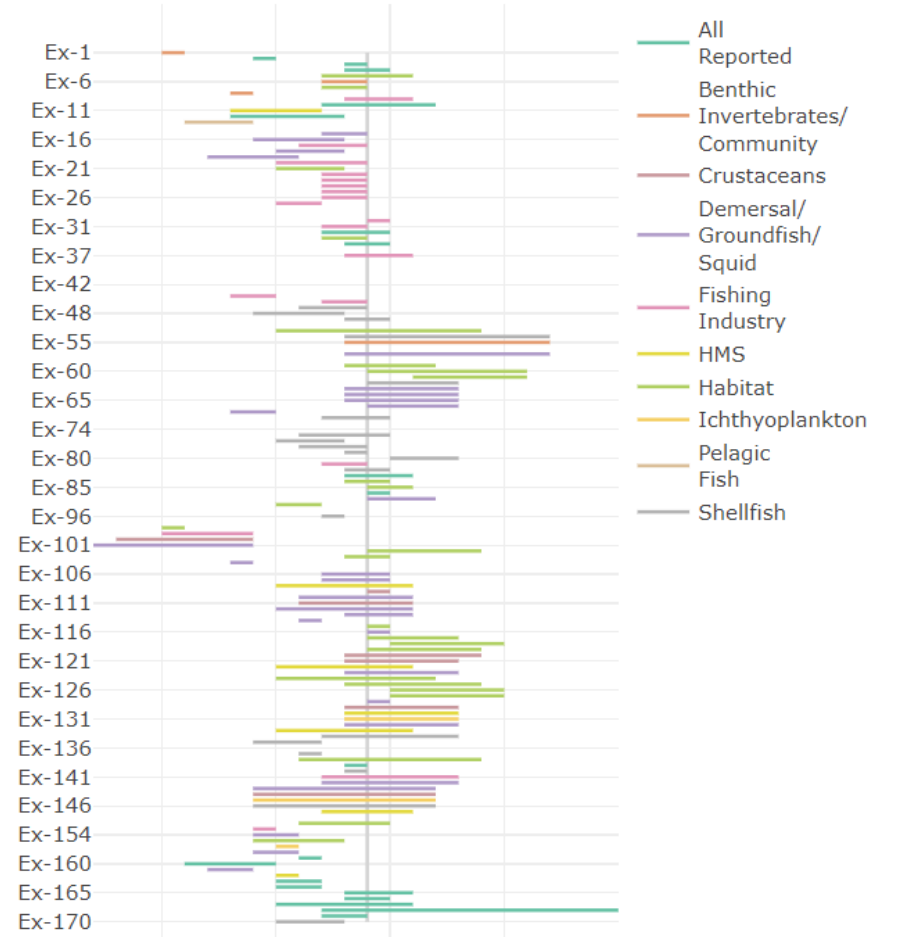
Find full project information in Database Center

Current Projects Snapshot

Rsrch. Proj. Id	Proj. Title	Rsrch. Category	Location	Funder	Lead Entity
<input type="button" value="All"/>	<input type="text"/>	<input type="button" value="All"/>	<input type="button" value="All"/>	<input type="button" value="All"/>	<input type="button" value="All"/>
Ex-1	Benthic Monitoring During Wind Turbine Installation and Operation at the Block Island Wind Farm, Rhode Island	Habitat Fragmentation/Modification	Southern New England	BOEM Environmental Studies Program	HDR
Ex-2	Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England	EMF	Southern New England	BOEM Environmental Studies Program	BOEM ESP
Ex-3	Feel the Vibrations: Behavioral Response by Fishes and Invertebrates to Particle Motion and Substrate Vibration from Offshore Renewable Energy	Sound/Vibration Impacts	Atlantic Coast	BOEM Environmental Studies Program	Pacific Northwest National Laboratory

No. of Projects by Location

Project Timelines



[Current Projects](#)

[Research Priorities](#)

[Acronyms List](#)

[Terms Definition](#)

[References](#)

Download as CSV

Rsrch. Proj. Id

Proj. Title

Rsrch. Category

Proj. Objectives

All ▾

All ▾

All ▾

Ex-1

Benthic Monitoring During Wind Wind Turbine Installation and Operation at the Block Island Wind Farm, Rhode Island

- All
- Cumulative Impacts
- Data Management
- EMF
- Fisheries Engagement & Capacity Building
- Fishery Access & Gear Modification
- Habitat Fragmentation/Modification
- Resource Monitoring
- Socioeconomic Impact
- Sound/Vibration Impacts
- Species Distribution/Composition
- Survey Adaptation

Ex-2

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

Ex-3

Feel the Vibrations: Behavioral Response by Fishes and Invertebrates to Particle Motion and Substrate Vibration from Offshore Renewable Energy Development

Other Attributes

- Developer Fisheries Monitoring Plan (Y/N)
- Fixed or Floating
- Wind Farm Development Phase
- Spatial Scale
- Location
- Project Title
- Lead Entity
- Partner Entities
- PI Name
- Project Objectives
- Methodology
- Receptor
- Project Start
- Est. Project End
- Funder
- Funding Partners
- Project Website



Download as CSV

Rsrch. Need Id	Rsrch. Category	Source Of Identification	Fixed Or Floating	Receptor	Spatial Scale	Location	Summary Of Rsrch. Need
All ▾	All ▾	All ▾	All ▾	All ▾	All ▾	All ▾	
RN-1	Sound/Vibration Impacts	Acoustic Society of America 2022	Both	All Reported	Offshore Wind Project	Atlantic Coast	Examine behavioral and physiological changes that may have implications for fitness, include prey relationships, and/or breeding success. This also allows some level of generalization. number of fish and invertebrate species, with community responses over the longer term.
RN-2	Sound/Vibration Impacts	Acoustic Society of America 2022	Both	All Reported	Offshore Wind Project	Atlantic Coast	Examine displacement due to behavioral re-identified in Sec. IV A (or via other efforts), i fishes and aquatic invertebrates displaced by noise? If so, how far from the stressor are s vertically (including into the sediment)? Do If so, for how long are they displaced?
RN-3	Resource Monitoring	Acoustic Society of America 2022	Both	All Reported	Offshore Wind Project	Atlantic Coast	Develop improved monitoring and data collection standardization and collection of high-quality



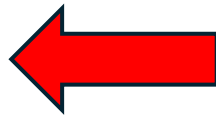
Submit Information to the FishFORWRD Database

Use the following links to send project information, research needs, or corrections. Your submission will be QA/QC'ed and added to the database during our next biannual update.

[Submit a Project](#)

[Submit Research Needs](#)

[Provide a Correction](#)



Additional Resources

See the links provided below for additional resources.

[RWSC Offshore Wind and Wildlife Research Database](#)

This database holds research projects and data collection activities on wildlife. Specifically marine mammals, birds & bats, sea turtles, habitat & ecosystem, protected fish species.

[Tethys Knowledge Base for Fish](#)

This knowledge base provides access to documents and information from around the world about the environmental effects of wind energy. This link filters these results to "Fish."

[NYSERDA Mitigation Practices Database Tool](#)

This tool is a searchable database of potential mitigation practices that may be relevant to avoiding, minimizing, offsetting and restoring potential effects of offshore wind energy development on wildlife, the environment, and fisheries.



FishFORWRD



Users & Uses – Increase Collective Capacity



Researcher

gain a comprehensive understanding of ongoing work in their area of expertise

connect with others conducting similar work, allowing them to leverage resources, data, and capacity for stronger future funding applications and better scientific outcomes

consult the research needs list to develop new project ideas for future funding opportunities.



Funder

avoid duplication of efforts in future funding opportunities

inform future solicitation topics

collaborate with entities that have expressed similar needs



Developer

explore the objectives, targeted receptors, and methodologies used in implemented fisheries monitoring

support ongoing projects with common interests or to solicit new research projects addressing specific research needs.



Public

learn about on offshore wind fisheries research

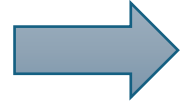
FishFORWRD Relaunch: Phase 2

Research Gaps Analysis

What Research Needs are Under Exploration?
How? On Which Receptor? By Who? Where?

What Gaps Still Remain?

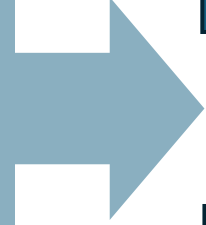
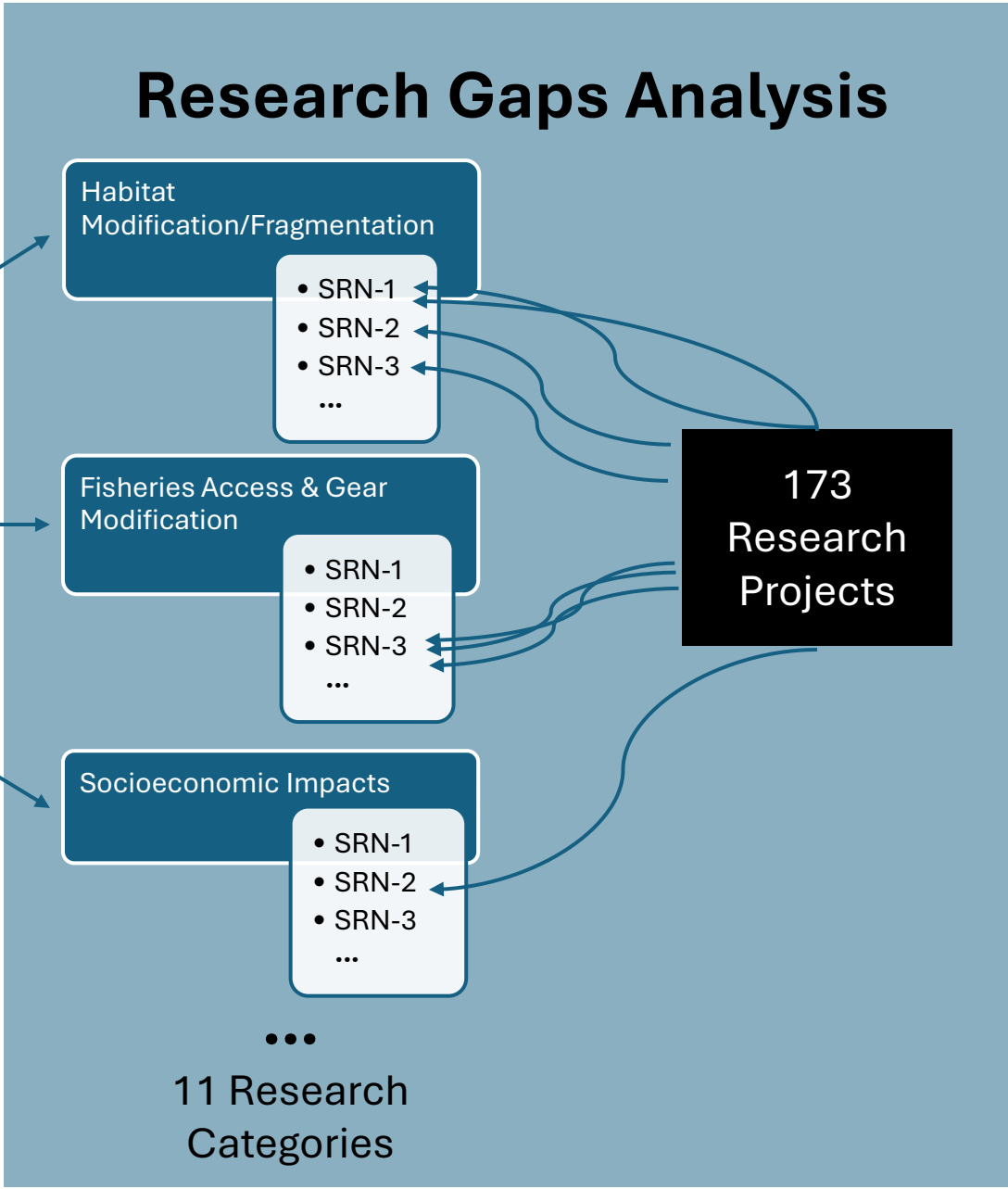
323
Research
Needs



Consolidate
duplicative or
species-specific
Research Needs

101
Summarized
Research
Needs (SRN)

Complete list
of RN still
available in
Database
Center



Explored
Research
Needs

Research
Gaps

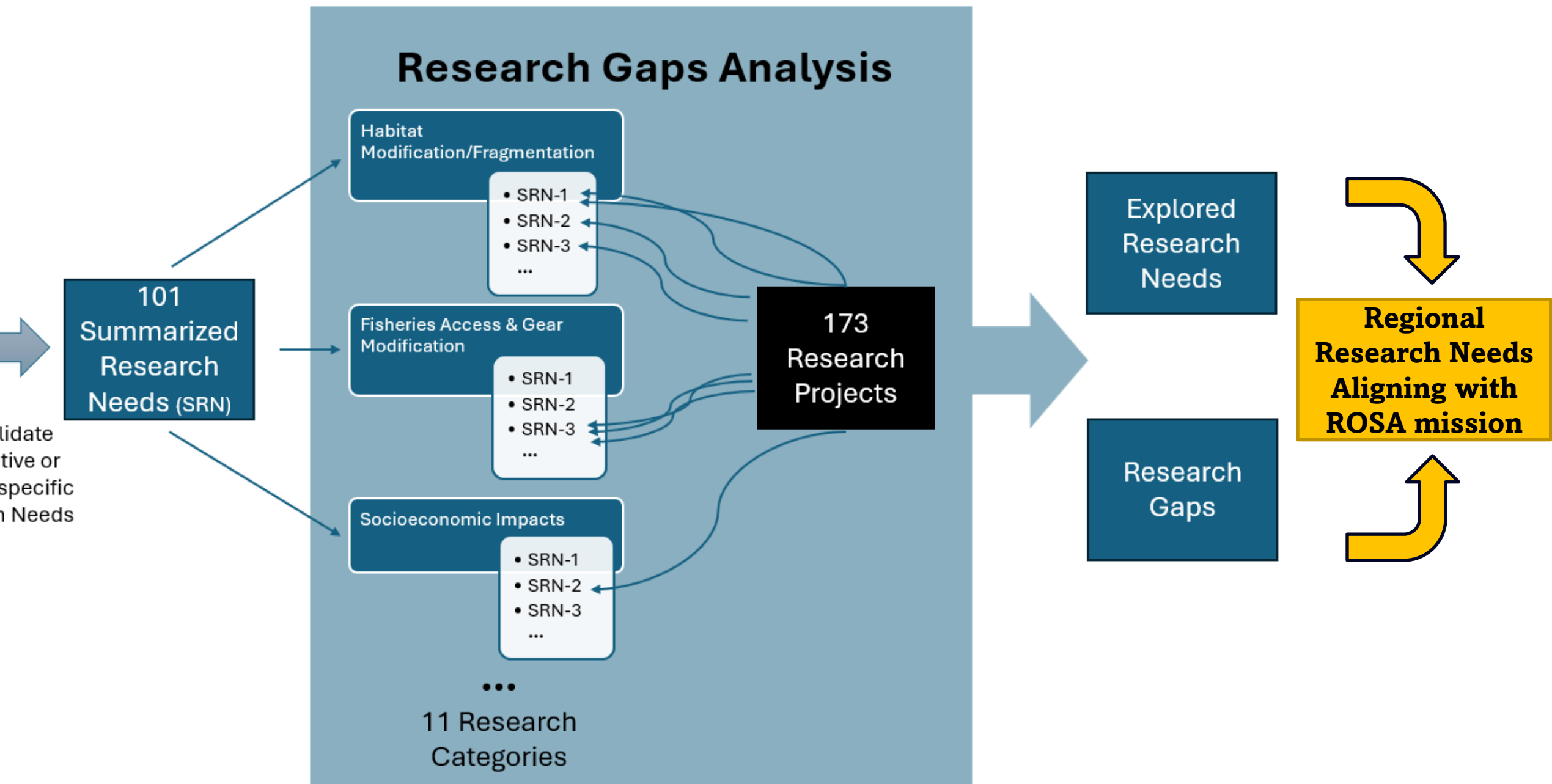
ROSA Regional RFP



Regional fisheries and offshore wind research is needed to improve our understanding of offshore wind effects on wildlife populations, marine ecosystems, and coastal economies.

Regional-scale research is needed to complement these project levels and site-specific surveys, create cohesive baseline data, and inform our understanding of potential impacts at the fisheries population, ecosystem, and fishing communities level.

Responsible Practices for Regional Wildlife Monitoring and Research in Relation to Offshore Wind Energy Development,
Regional Synthesis Working Group of E-TWG, 2023



2024 Gaps Analysis ROSA Regional RFP Topic Area Feedback



Accepting input now on regional
research needs ROSA should
consider funding in future RFPs

scan QR code or visit

rosascience.org/resources/fishforwrld

Next Steps



Routine biannual updates
for new projects and news

Peer review of gaps analysis
results

Update webtool with
Research Gaps Analysis

Publication



Offshore Wind Project
Monitoring Framework
and Guidelines

March 2021

OSW Monitoring Guidelines

Acoustic Telemetry
Committee

Data Governance Program

Coordination through
Engagement

thank you for listening

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FishFORWRD



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