



ROSA
Responsible Offshore
Science Alliance

ROSA Advisory Council Meeting
September 29, 2023

Captain Jimmy Ruhle



At the helm of the *Darana R*, June 6, 2022



On deck, June 6, 2022

Agenda

COOPERATION
COLLABORATION
SCIENCE BASED
DATA DRIVEN

1:00pm Welcome, Introductions, Agenda Review

1:10pm Fish FORWRD webtool – *Mike Pol, ROSA*

1:30pm* Regional Monitoring Plan Discussion - *Mike Pol, ROSA*

**2:00pm* Offshore Wind Fisheries Monitoring Plan Development,
Implementation, & Evolution Sessions - *Reneé Reilly, ROSA***

2:30pm Overview/input on ROSA Strategic Plan - *Reneé Reilly, ROSA*

3:00pm Action Items and Next Steps

3:15pm Adjourn

Fish FORWRD webtool



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Fish and Fisheries Offshore Wind Research Database (Fish FORWRD)




- Identifies research gaps on effects of OSW on fish and fisheries by bringing together regional research priorities and regional research projects
- Supports development of research priorities for ROSA's upcoming role as research funding organization
- Developed as a spreadsheet and is now evolving into a webtool for easier and broader use
- We're asking for feedback on designs



← QR CODE for Fish FORWRD spreadsheet



Regional Framework Database | X +

https://www.rosascience.org/resources/regional-framework-databases/



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Purpose and Background: ROSA Fish and Fisheries Offshore Wind Impacts Research Needs Database- Version November 2022
 The overall purpose of this tool is to present a compilation of existing Fish and Fisheries Research projects (since 2017) related to offshore wind development from Maine to Hatteras, NC, capture the identified Research Needs, identify the outstanding gaps not yet fully addressed in the Research Needs by the existing projects, and provide a platform for users (e.g., agencies, developers, research institutions) to filter/sort Research Needs and identify areas for funding allocation. The spreadsheet was created as a relational database and to provide the back-end of a website or web tool.

Example of process for filtering spreadsheet entries to arrive at a subset of research needs that fits the requirements of the database user

```

  graph LR
    T1[Tier 1: Filtering of identified needs] --> T2[Tier 2: Priority criteria]
    T2 --> T3[Tier 3: Overall funding considerations]
  
```

Tier 1: Filtering of identified needs

- Research focus areas
- Species/taxa
- Geographic focus
- Spatial scale
- Temporal scale
- Developmental stage
- Stakeholder identified
- Funding availability
- Level of research need completeness
- Narrow potentially 100s of research needs

Tier 2: Priority criteria

- Urgency of need
- Fills key data gaps
- Level of
- Achievability
- Contributes to understanding of regional- and population-level and cumulative effects
- Informs decision making
- Narrow to <10 priority needs

Tier 3: Overall funding considerations

- Various species/taxa of focus
- Grantees from multiple institutions
- Regional representation
- Engagement of stakeholders/collaborators
- Engagement of underrepresented communities
- Narrow to a few funded projects

Methodology/Table of Contents

Tab #/Name	Purpose	Process
Overview	Orient the user to the layout of the spreadsheet and process used to create each piece of the database	The methodology of the development of this spreadsheet and creation of each tab was outlined and described.
1. Existing Research Projects	Catalogs existing research and categorizes them by identified research need	The references listed in the 3. References tab were reviewed and existing research projects were added to the spreadsheet with as much column information as possible. Included overlap to cross reference between tabs 1 and 2 were the following column headings in each table: Research Category, Identified Research Need, Source of Identification, Windfarm Development Stage, Location, and Scale. Each project was given a unique identifier to crossreference when a particular project satisfies an identified research need in tab 2. Identified Research Needs. This list will likely need continual updating as more projects are funded and wind farms become installed along the East Coast.


and how the databases were created. The report also includes a form to suggest additional

Regional Framework Database | X +

https://www.rosascience.org/resources/regional-framework-databases/

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Introduction to Pivot Tables:
Pivot tables can be useful tools for summarizing datasets and identifying trends. In the ROSA's 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 more interesting sub-trends.

The pivot tables to the right are overviews of identified Research Needs by level of completeness and scale and existing projects, by location.

How to Create Unique Pivot Table:

- To create a pivot table, click "Insert", then "PivotTable".
- Select all the data in either tab "Identified Research" or "Identified Research Needs" (except the top row) and choose whether you want the Pivot Table to display within the tab or in a new tab on its own.
- Excel will create a blank pivot table. Choose which categories you would like to use as *filters* to organize your pivot table in the order of *rows*, 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 sub-categories, choose "Identified Research Need", "Identified Research Need", and "Identified Research Needs". In order to be able to identify specific research needs, check "Research Need ID Number" and ensure it is set in the Rows list.
- To set filters, choose a category you would like to filter by. For example, if you want to look at the number of research needs at 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.

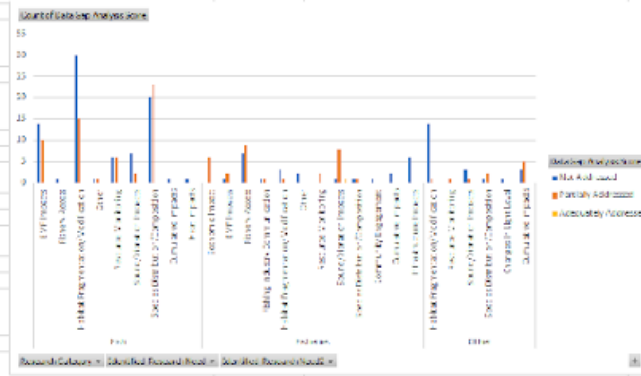
Table 1. Number and Subject of Research Needs and Their Level of Completeness

Row Labels	Not Addressed	Partially Addressed	(Blank)	Adequately Addressed	Grand Total
# Fish	81	57			138
#DMT Impacts	14	10			24
#Fishery Access	1				1
#Habitat Fragmentation/Modification	10	15			25
Other	1	1			2
#Resource Monitoring	6	6			12
#Sound/Vibration Impacts	7	2			9
#Species Distribution/Composition	20	25			45
#Cumulative Impacts	1				1
#Great Impacts	1				1
#Historics	75	38		1	114
#Seismic Impact		6			6
#DMT Impacts	1	2			3
#Fishery Access	7	9			16
#Hiding Industry Communication	1	1			2
#Habitat Fragmentation/Modification	5	1			6
#Other	2				2
#Resource Monitoring		7			7
#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	77	10			87
#Habitat Fragmentation/Modification	14	1			15
#Resource Monitoring		1			1
#Sound/Vibration Impacts	3	1			4
#Species Distribution/Composition	1	7			8
#Changes in Light Level	1				1
#Cumulative Impacts	5	5			10
Grand Total	136	97		1	234

Table 2. Count of Research Needs by Subject and Level of Completeness

Row Labels	Not Addressed	Partially Addressed	(Blank)	Adequately Addressed
# Changes in Light Level	1			
#N-1	1			
# Community Engagement	1			
#N-1	1			
# Cumulative Impacts	6	5		
#N-10	1			
#N-11			1	
#N-22	1			
#N-23	1			
#N-159				1
#N-4	1			
#N-5	1			
#N-6	1			
#N-7				1
#N-8				1
#N-9				1
# Cumulative Impact	6			
#N-14				1
#N-15				1
#N-26				1
#N-27				1
#N-2				1
#N-50				1
#DMT Impacts	14	10		
#N-28				1
#N-29				1
#N-30				1
#N-21				1
#N-224				1
#N-254				1
#N-215				1
#N-216				1
#N-227				1
#N-228				1
#N-229				1
#N-230				1
#N-231				1
#N-232				1
#N-233				1
#N-234				1
#N-23				1
#N-24				1
#N-25				1
#N-26				1
#N-30				1
#N-31				1
#N-32				1
#N-33				1
#N-24				1
# Fishery Access	1			
#N-270				1
#N-27				1
#N-25				1
#N-26				1
#N-37				1
#N-38				1
#N-39				1
#N-10				1
#N-41				1

Chart of Data Gap Analysis Score



and how the databases were created. The report also includes a form to suggest additional

Discussion Questions



- How do you see yourself using the Fish FORWRD webtool?
- What should be the first thing people see (i.e., on the dashboard)?
- What pre-loaded figures/tables/graphs would you like to see?
- Would you DIY a pivot table?
- Does the interface seem navigable?
- Any other features or tools you might want?

87
Existing Project

236
Research Needs

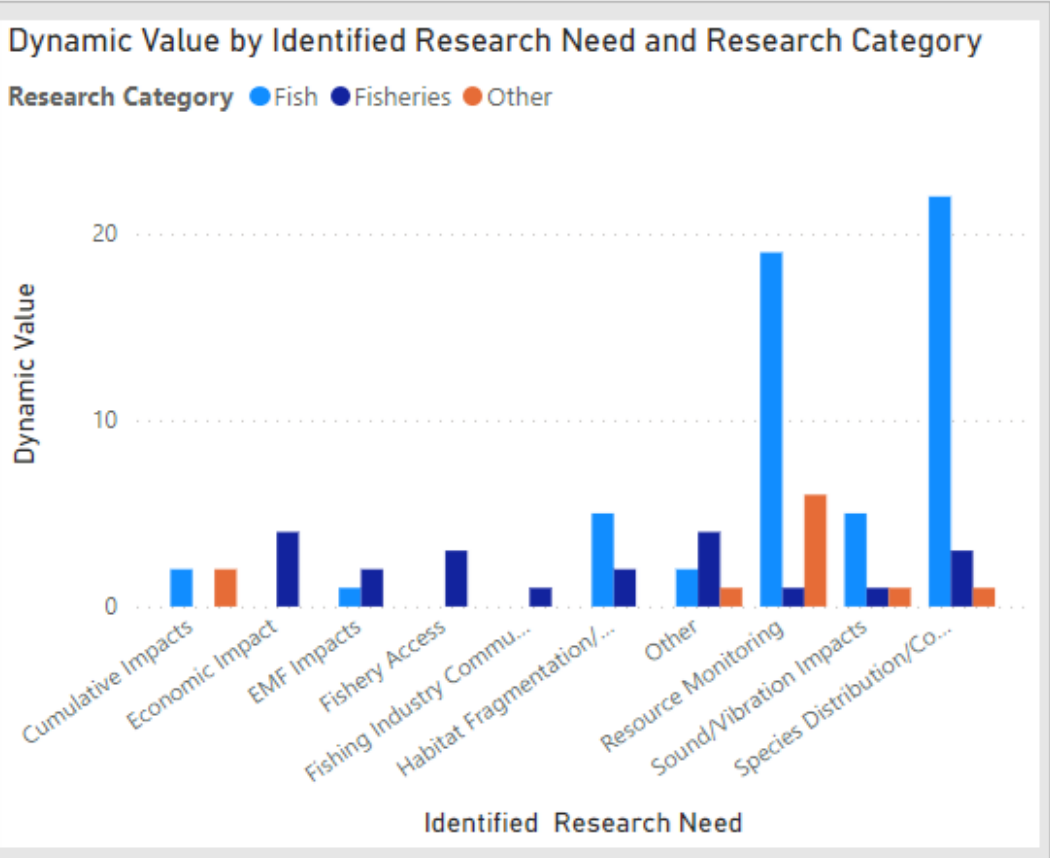
104
Research Needs Addressed by Existing Project

Number and Subject of Research Needs by Level of Completeness

Research Needs by Subject and Level of Completeness

Existing Research Projects by Subject and Location

Identified Research Need	Adequately Addressed	Not Addressed	Partially Addressed	Total
Changes in Light Level		Not Addressed		Not Ad
Community Engagement		Not Addressed		Not Ad
Cumulative Impacts		Not Addressed	Partially Addressed	Not Ad
Economic Impact			Partially Addressed	Partial
EMF Impacts		Not Addressed	Partially Addressed	Not Ad
Fishery Access		Not Addressed	Partially Addressed	Not Ad
Fishing Industry Communication		Not Addressed	Partially Addressed	Not Ad
Habitat Fragmentation/Modification		Not Addressed	Partially Addressed	Not Ad
Heat Impacts		Not Addressed		Not Ad
Infrastructure Impacts		Not Addressed		Not Ad
Economic Impact		Not Addressed		Not Ad
Null		Not Addressed		Not Ad
Other		Not Addressed	Partially Addressed	Not Ad
Resource Monitoring		Not Addressed	Partially Addressed	Not Ad
Sound/Vibration Impacts	Adequately Addressed	Not Addressed	Partially Addressed	Adequa
Species Distribution/Composition		Not Addressed	Partially Addressed	Not Ad
Total	Adequately Addressed	Not Addressed	Partially Addressed	Adequa



Pivot

Dynamic Pivot

Existing Projects

Research Needs

Supplemental Information

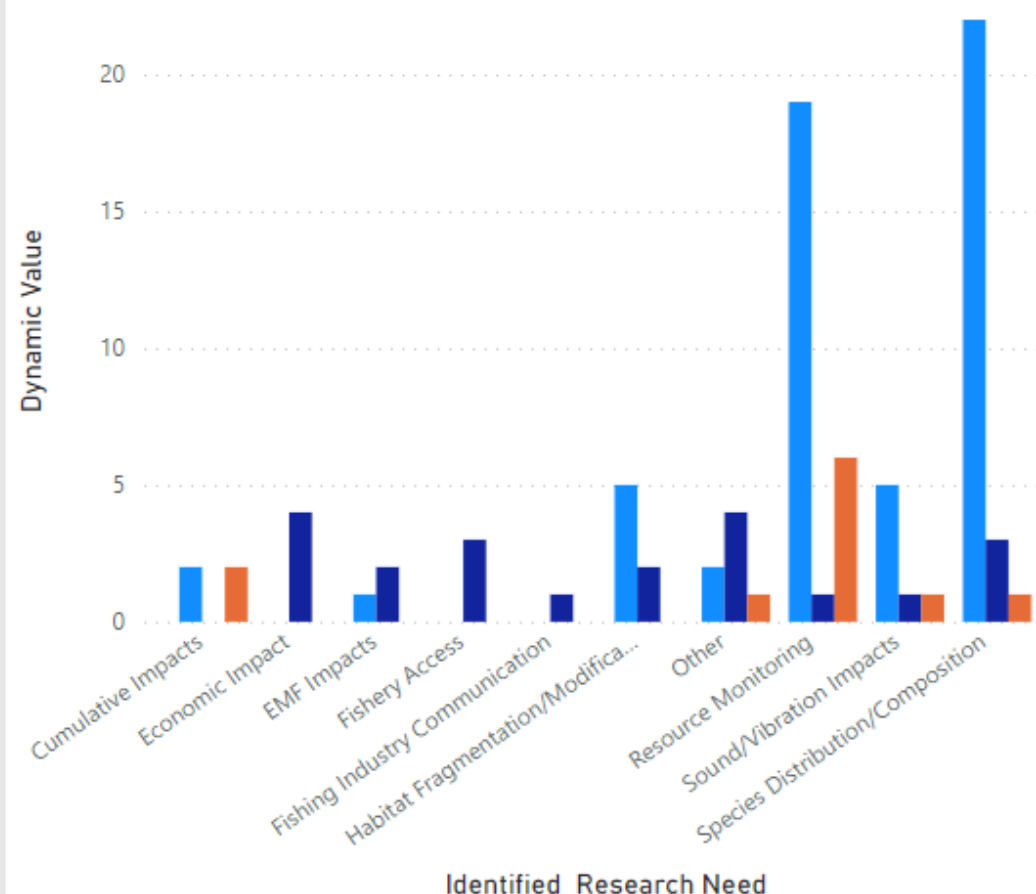
Dynamic Column

All

Identified Research Need	Count of Location	Count of Status	Total
Cumulative Impacts	4	4	4
Fish	2	2	2
Complete	1	1	1
Not yet started	1	1	1
Other	2	2	2
Not yet started	2	2	2
Economic Impact	4	4	4
Fisheries	4	4	4
Complete	2	2	2
Ongoing	1	1	1
Pending	1	1	1
EMF Impacts	3	3	3
Fish	1	1	1
Undetermined	1	1	1
Fisheries	2	2	2
Complete	1	1	1
Ongoing	1	1	1
Fishery Access	3	3	3
Fisheries	3	3	3
Ongoing	2	2	2
Undetermined	1	1	1
Fishing Industry Communication	1	1	1
Fisheries	1	1	1
Ongoing	1	1	1
Total	88	88	88

Dynamic Value by Identified Research Need and Research Category

Research Category ● Fish ● Fisheries ● Other



Pivot

Dynamic Pivot

Existing Projects

Research Needs

Supplemental Information



Animal Group	Animal Group Value	Animal Group2	Animal Group3	Fixed or Floating	GIS Data Available (Y/N)	Identified	Research Need
				Fixed			
All Reported	commercially or recreationally important			Fixed	Undetermined	EMF Impacts	
All Reported	commercially or recreationally important			Fixed	Undetermined	Resource Monitoring	S
All Reported	Not Applicable			Fixed	Undetermined	Cumulative Impacts	S
All Reported	Not Applicable			Fixed	Undetermined	Cumulative Impacts	S
All Reported	Not Applicable	Null	Null	Fixed	No	Sound/Vibration Impacts	M
All Reported	Not Applicable	Null	Null	Fixed	No	Species Distribution/Composition	M
All Reported	Not Applicable	Null	Null	Fixed	Undetermined	Cumulative Impacts	S
All Reported	Not Applicable	Null	Null	Fixed	Undetermined	EMF Impacts	M
All Reported	Not Applicable	Null	Null	Fixed	Undetermined	Habitat Fragmentation/Modification	C
All Reported	Not Applicable	Null	Null	Fixed	Undetermined	Habitat Fragmentation/Modification	C

Pivot

Dynamic Pivot

Existing Projects

Research Needs

Supplemental Information

Research Category, Identified Research Need

Existing Project Addressing Need (I...

Data Gap Analysis Score

Location

Spatial Scale

Windfarm Development Stage

Identified Research Need



	Ex-19	Ex-19: this is a ventless trap/neuston net/BSB trap survey of the Vineyard Wind 1 WEA.
	Ex-19, Ex-20, Ex-21	Ex-19: this is a ventless trap/neuston net/BSB trap survey of the Vineyard Wind 1 WEA. Ex-20: this is a trawl survey within the Vineyard Wind 1 WEA. Ex-21: this is a drop camera survey within the Vineyard Wind 1 WEA to determine substrate type, benthic communities
	Ex-19, Ex-20, Ex-21, Ex-54	Ex-19: this is a ventless trap/neuston net/BSB trap survey of the Vineyard Wind 1 WEA. Ex-20: this is a trawl survey within the Vineyard Wind 1 WEA. Ex-21: this is a drop camera survey within the Vineyard Wind 1 WEA to determine substrate type, benthic communities Ex-54: A component of this project is to examine how changes in habitat effect forage fish shoals.
	Ex-36, Ex-51	Ex-36: using hydrophones to detect soniferous fish in BOEM lease areas in southern New England. Using a different methodology than identified in need. Ex-51: telemetry study of cod in MA-RI WEA. Using a different methodology than identified in need.
Adequately Addressed	Ex-40, Ex-57	Ex-40: One of the objectives of this project was to assess baseline soundscape and ecosystem conditions in support of predictive environment planning areas. Ex-57: This project focused on ambient noise in marine sanctuaries, so may offer a view into soundscape in a quieter area (Stellwagen Bank, M
Not Addressed	Ex-3	Ex-3 is monitoring the spawning of sea scallops around Georges Bank/ South Channel. More studies of other species and over wider areas are
Not Addressed	Ex-49	This is not a research project on how to standardize surveys, it is an ongoing survey for Sunrise Wind Farm that is being conducted in a way to
Not Addressed	Ex-54	Ex-54: a component of this project is looking at shifts in forage fish distribution influences predatory bird distributions

References

Definition of Terms

Acronyms List

Column	Definition
Windfarm Development Stage	All activities related to taking the wind farm out of service and removing components from the ocean. Includes restoration to pre-existing conditions.
Windfarm Development Stage	All activities that occur once the wind farm is in service.
PI Affiliation	An affiliation was not identified for this particular PI
Identified Research Needs	An increase in water or air temperature above typical levels, potentially related to operation of export or interarray cables and discharge from offshore substations.
Animal Group Value	Animals researched in the project are not state or federally listed threatened or endangered, nor are they identified as being commercially or recreationally important.
Animal Group	Bivalves and molluscs.
Identified Research Needs	Changes in target fish abundance, distribution, taxonomic composition, and or/behavior as a direct or indirect result of offshore wind energy development.
Identified Research Needs	Changes to access and operation within fishing grounds (e.g., impairment of navigational equipment, potential to catch buried cables in fishing gear and/or gear entanglement). Includes displacement and/or changes in location and timing of commercial and recreational fishing efforts.
Identified Research Needs	Changes to the economic value of commercial and recreational fishing industries (e.g., revenues, landings, trips, employment) due to offshore wind development.
Windfarm Development Stage	Construction of the wind farm, including turbines, offshore substations, interarray cables, export cables. Includes any restoration activities associated with construction.
Identified Research Needs	Effects to shoreside infrastructure such as, but not limited to access or availability to ports and docks, fueling stations, fish processing facilities, and other related facilities. Also includes situations in which vessel infrastructure and equipment such as engines, global positioning systems, radar, fishing gear, and safety equipment are affected. Includes changes in fishing vessel behavior caused by the need to navigate around or through offshore wind energy facilities.
Identified Research Needs	Electromagnetic fields associated with cables that carry electricity from and between energy sources, such as wind turbines, to power stations.
Animal Group	Fish that live and feed mainly in the water column.
Animal Group	Fish that live and feed mainly on or close to the seafloor.
Identified Research Needs	Habitat fragmentation is the loss of suitable habitat that results in division of large, contiguous habitats into smaller disconnected habitat patches. Habitat fragmentation can result in loss of structure, or function of an existing habitat (e.g., wind turbines provide new substrate that can support encrusting organisms that would not otherwise be present).

Pivot

Dynamic Pivot

Existing Projects

Research Needs

Supplemental Information

Discussion Questions



- How do you see yourself using the Fish FORWRD webtool?
- What should be the first thing people see (i.e., on the dashboard)?
- What pre-loaded figures/tables/graphs would you like to see?
- Would you DIY a pivot table?
- Does the interface seem navigable?
- Any other features or tools you might want?

Regional Monitoring Plan Discussion





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Regional Cross-Project Resource Monitoring for Offshore Wind

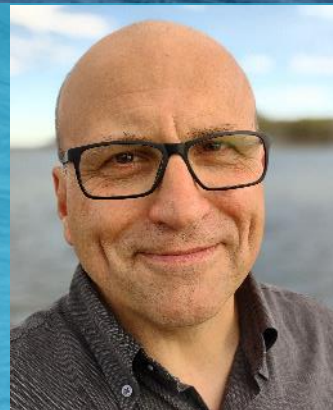
Mike Pol, PhD

Research Director, ROSA

M: (508) 927-2817

Mike@rosascience.org

<https://www.rosascience.org/>



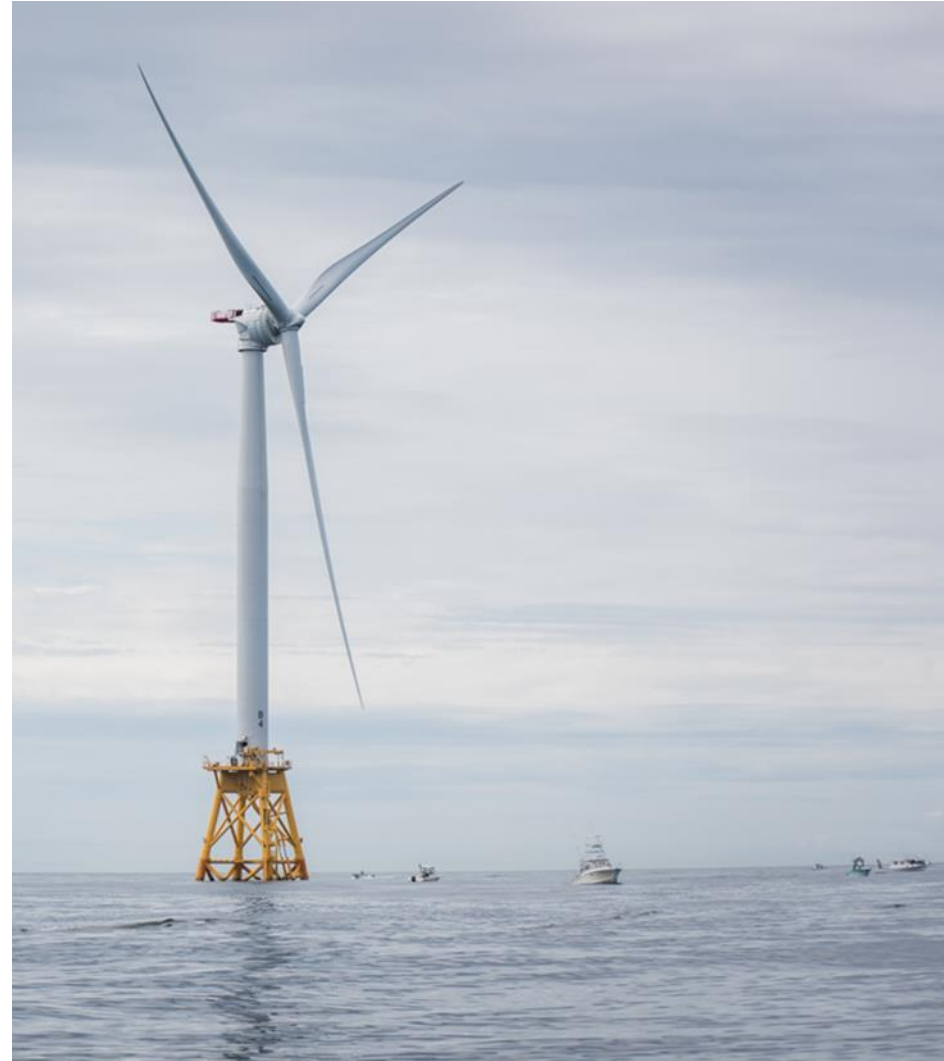
Regional Impacts

- Need to assess regional impacts from OSW on fisheries
- Methodology for regional assessment is unclear
- Better rigor if regional coordination across leases and construction and operation plans
- Sampling plans focus on high value species, but assessment of others is needed



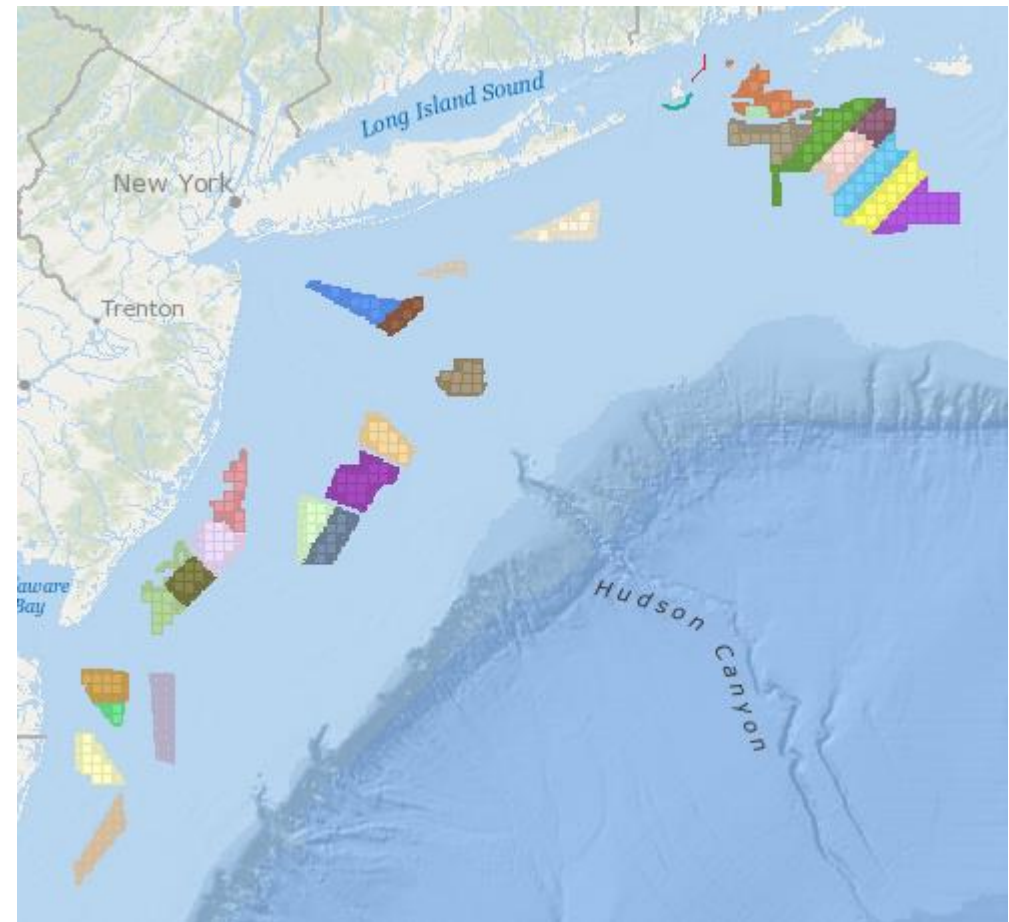
Problems in Status Quo

- High frequencies of extractive sampling
- Increased mortality and risk to protected species
- Difficulty in permitting
- Tension between monitoring and protecting marine resources
- Only one year pre-construction required, so baselines may not be established



Regional Monitoring Approaches and Considerations

- Regional monitoring approach can resolve many of these issues
- Combine lease areas into one regional study area
- Issue an RFP for monitoring studies of the regional study area
- Collaborate with BOEM, NMFS and developers to fulfill the requirements for fisheries monitoring studies and meet permitting requirements
- Find ways to structure surveys and include data collection to help mitigate impact to NMFS surveys
- Interest among stakeholders, developers and agencies to work towards regional approach



generated using data on the Northeast Ocean Data Portal

Feedback from Attendees



- Fine-scale lease monitoring will be needed no matter what else happens
- Two tiers of monitoring may be needed to address both regional and project-specific impacts
- Developer interest in efficiencies
- Scientific interest in cumulative impacts
- Regulatory interest in streamlining process

Discussion Questions



- How different are the research questions at the lease and regional levels?
- What methods or questions can best be addressed with a regional approach?
- Is ROSA the right organization to lead this effort? If so, what priority should we give it?

Offshore Wind
Fisheries
Monitoring Plan
Development,
Implementation, &
Evolution Sessions



Coordination Sessions: Purpose & Intent



GOALS:

1. Offer a forum for each sector to collaborate
2. Gather information & document outstanding concerns/questions
3. Identify potential solutions

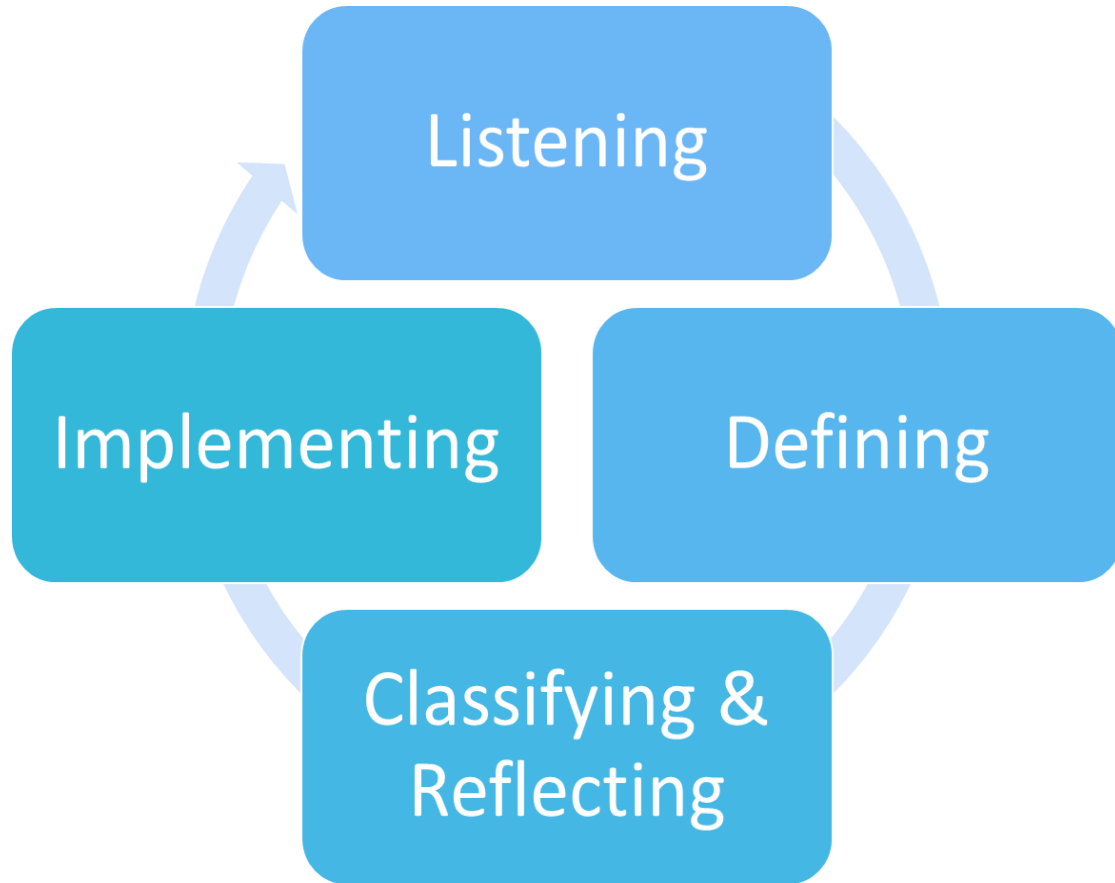
ROSA seeks to provide a neutral space for these discussions, in part to characterize challenges and solutions, and to understand through what role the organization will best serve the community.

ROSA will distill the outcomes of these sessions into a report that will be used to update the Offshore Wind (OSW) Project Monitoring Framework & Guidelines

Overview/input
on ROSA
Strategic Plan



ROSA Strategic Planning



ROSA Strategic Plan Elements

- Vision
- Mission
- 5-year Roadmap
 - **3 Key Goals**
- Organizational Risk Factors
- Key Performance Indicators



ROSA Strategic Plan: 3 Key Goals



1. Coordinate OSW Fisheries Research & Monitoring
1. Update & maintain ROSA OSW Project Monitoring Framework & Guidelines
1. Assess Regional/Cumulative Impacts

ROSA Strategic Plan: 3 Key Goals



- 1. Coordinate OSW Fisheries Research & Monitoring**
Provide fora & databases for coordination within & across sectors
- 1. Update & maintain ROSA OSW Project Monitoring Framework & Guidelines**
Create alignment in tools, methods, data sharing & analysis
- 3. Regional/Cumulative Impacts Assessment**
Facilitate development of a Regional Monitoring Plan for Fish & Fisheries
Build upon existing plans, create synergies & efficiencies

Goal #1) Coordinate OSW Fisheries Research & Monitoring: Fish FORWRD Database & Webtool



Fish FORWRD database serves two functions:

1. Synthesizes existing research priorities
 2. Compiles research being undertaken by programs along the East Coast
- Highlights gaps in research that can inform future research prioritization.
 - New user-friendly webtool currently in development
 - Looking to secure funding for regular updates to the database

Goal #1) Coordinate OSW Fisheries Research & Monitoring: Coordination Sessions



OSW Fisheries Monitoring Plan Development, Implementation, & Evolution Sessions will serve 3 functions:

- Document concerns/challenges, identify solutions
- Summary report to inform updates to ROSA Framework & Guidelines
- Increase coordination & support regional/cumulative impacts assessments

ROSA Strategic Plan: 3 Key Goals



1. **Coordinate OSW Fisheries Research & Monitoring**
Provide fora & databases for coordination within & across sectors
1. **Update & maintain ROSA OSW Project Monitoring Framework & Guidelines**
Create alignment in tools, methods, data sharing & analysis
3. **Regional/Cumulative Impacts Assessment**
Facilitate development of a Regional Monitoring Plan for Fish & Fisheries
Build upon existing plans, create synergies & efficiencies

Goal #2) Update & maintain ROSA OSW Project Monitoring Framework & Guidelines



Updating and maintaining the OSW Project Monitoring Framework & Guidelines will serve several purposes:

- Create alignment in experimental designs, tools & methods, data sharing, analysis, & governance
- Outcomes from the “Coordination Sessions” will be used for these updates, thereby implementing solutions that are co-created across sectors

ROSA Strategic Plan: 3 Key Goals



1. **Coordinate OSW Fisheries Research & Monitoring**
Provide fora & databases for coordination within & across sectors
1. **Update & maintain ROSA OSW Project Monitoring Framework & Guidelines**
Create alignment in tools, methods, data sharing & analysis
3. **Regional/Cumulative Impacts Assessment**
Facilitate development of a Regional Monitoring Plan for Fish & Fisheries
Build upon existing plans, create synergies & efficiencies

Goal #3) Regional/cumulative impacts assessment



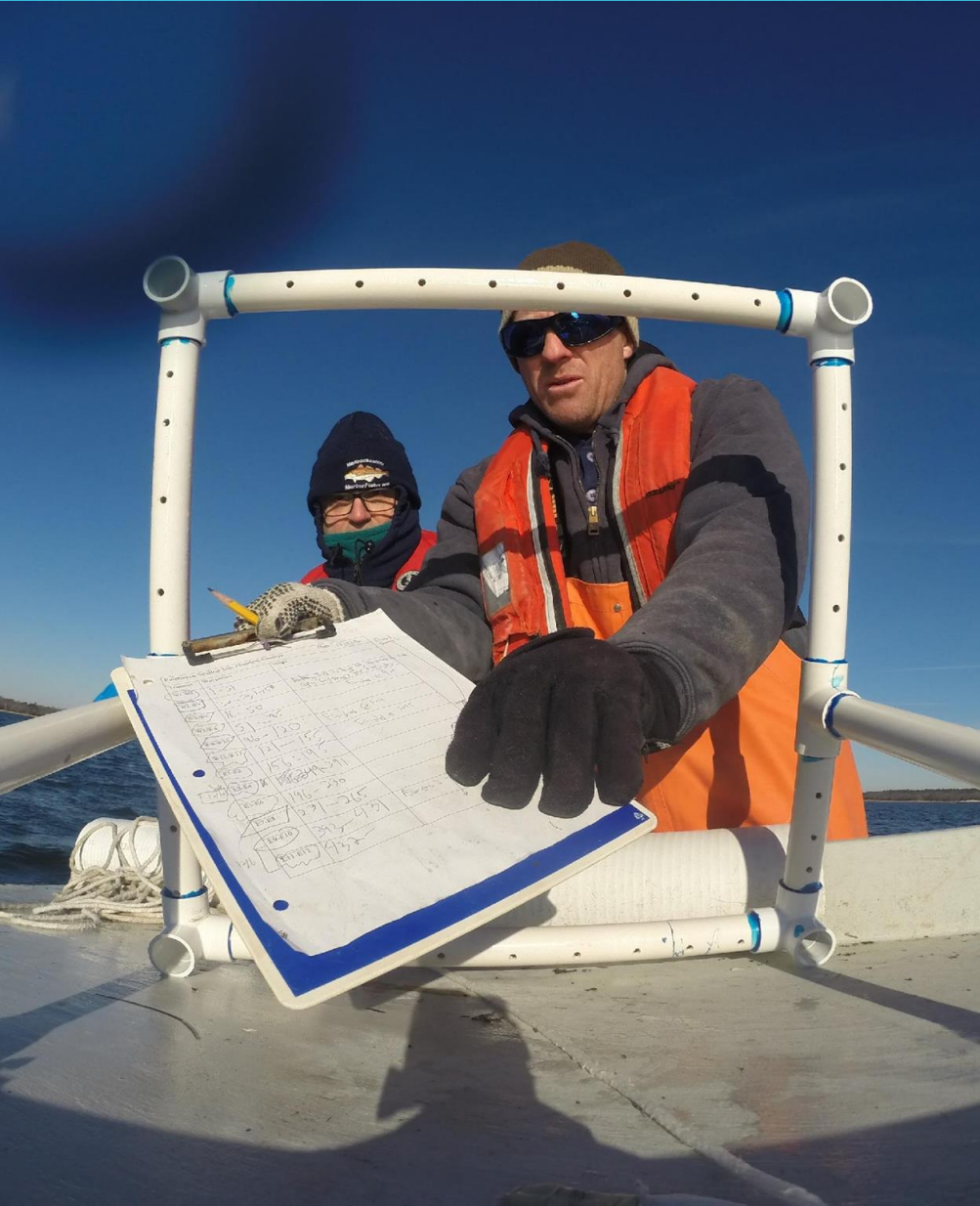
Regional coordination improves:

- Scientific rigor
- Efficiency
- Effectiveness

cumulative impacts assessment will improve

- Regional
- Regional monitoring approach (combining lease areas into one regional study area) can resolve many project-specific monitoring plan issues

Advisory Council Guidance



1. Are these 3 Key Goals appropriate?
1. How can ROSA balance serving the community with achieving these goals?
1. As OSW development expands geographically, what model makes the most sense for ROSA?

Action Items and Next Steps



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Regional Items of Interest



- RWSC Science Plan review (comments due 9/30/23; available at [rwsc.org/science-plan/](https://www.rwsc.org/science-plan/))
- *Responsible Practices for Regional Wildlife Monitoring and Research in Relation to Offshore Wind Development* Published; available at nyetwg.com/regional-synthesis-workgroup
- Advisory Council additional updates?

Upcoming Meetings



- *Offshore WINDPOWER* – Boston, Oct. 3-4th
- *Mid-Atlantic Fishery Management Council* meeting (OSW Update 10/4)
- *Pathways for a Sustainable Co-existence of Offshore Energy, Fisheries and Marine Conservation: From Local Empirical Evidence to Global Perspectives* – Symposium at 9th World Fisheries Congress, Seattle, March 3rd-9th, 2024