ROSA
Responsible Offshore Science Alliance

ROSA Advisory Council

December 19, 2024

Agenda

1:00pm	**Welcome, Introductions, Agenda Review**
1:10pm	**ROSA Updates**
1:35pm	**Partner Updates & Shellfish Enhancement Discussion**
2:45pm	**Break**
2:50pm	**Assessing impact of ROSA's monitoring guidelines on COP development**
3:05pm	**ROSA Advisory Council 2025 Planning**
3:55pm	**Action Items, Next Steps, and Other Business**
4:00pm	**Adjourn**

ROSA

Leading Regional Research on Offshore Wind & Fisheries

Inception:

Formed in early 2019 as a 501(c)3 through partnership between RODA and OSW developers

Mission:

The Responsible Offshore Science Alliance (ROSA) is a nonprofit organization that **advances research, monitoring, and methods on the effects of offshore wind energy development on fisheries across US federal and state waters**. We serve as an objective resource for all sectors and facilitate the coordination of regional scientific research to collaboratively and efficiently deepen understanding.

ROSA

ROSA AC Executive Committee

Current Executive Committee includes representatives from:

- **Commercial Fishing**
  - Peter Hughes
  - Eric Reid
- **Recreational Fishing**
  - Mike Waine
  - Willy Goldsmith
- **OSW Development**
  - Jennifer Daniels
  - Ruth Perry
- **State representative**
  - Julia Livermore
  - Morgan Brunbauer
- **Regional Organizations**
  - Andy Lipsky
  - Bob Beal

Reminder to EC to review the ROSA Data Policy by Jan 2

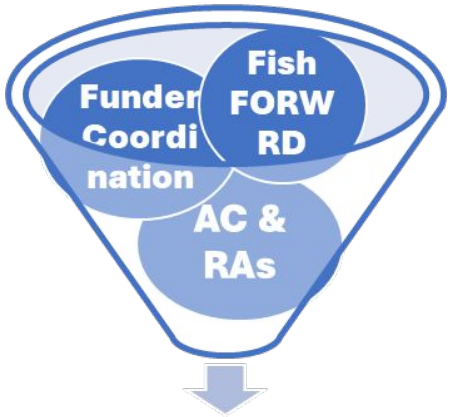
ROSA

ROSA Updates

Regional RFP

Tricia Perez

ROSA RFP Development Process



RFP Development Plan	Research Topic Areas	Draft & Publish RFP	Review Concept Papers & Full Applications	Select Final Projects & Negotiate	Project Start & Management
complete	complete	complete	NEXT STEP	June 2025	Summer 2025

ROSA

Advancing Regional Solutions for Fisheries and Offshore Wind

ROSA Regional RFP 01

Topic Area	$$/TA	# Projects
Supporting Fisheries Access	$1,600,000	2-3
Understanding Potential Offshore Wind Impacts to Larval Fish	$1,200,000	1-2
Fisheries Monitoring: Data Integration, Evaluation, & Analysis	$642,500	2-3
	$3,442,500	

CONCEPT PAPERS DUE TOMORROW by 5 PM ET

Full applications due on **March 14, 2025** by 5 PM ET

Project selections expected to be announced **June 2025**

ROSA

Data Governance Program

Mike Pol

Data Governance Program

Goal: To develop guidance for offshore wind fisheries data, **in support of future regional or cumulative impacts assessments**.

Focus on data streams from methodologies used in monitoring plans and OSW research

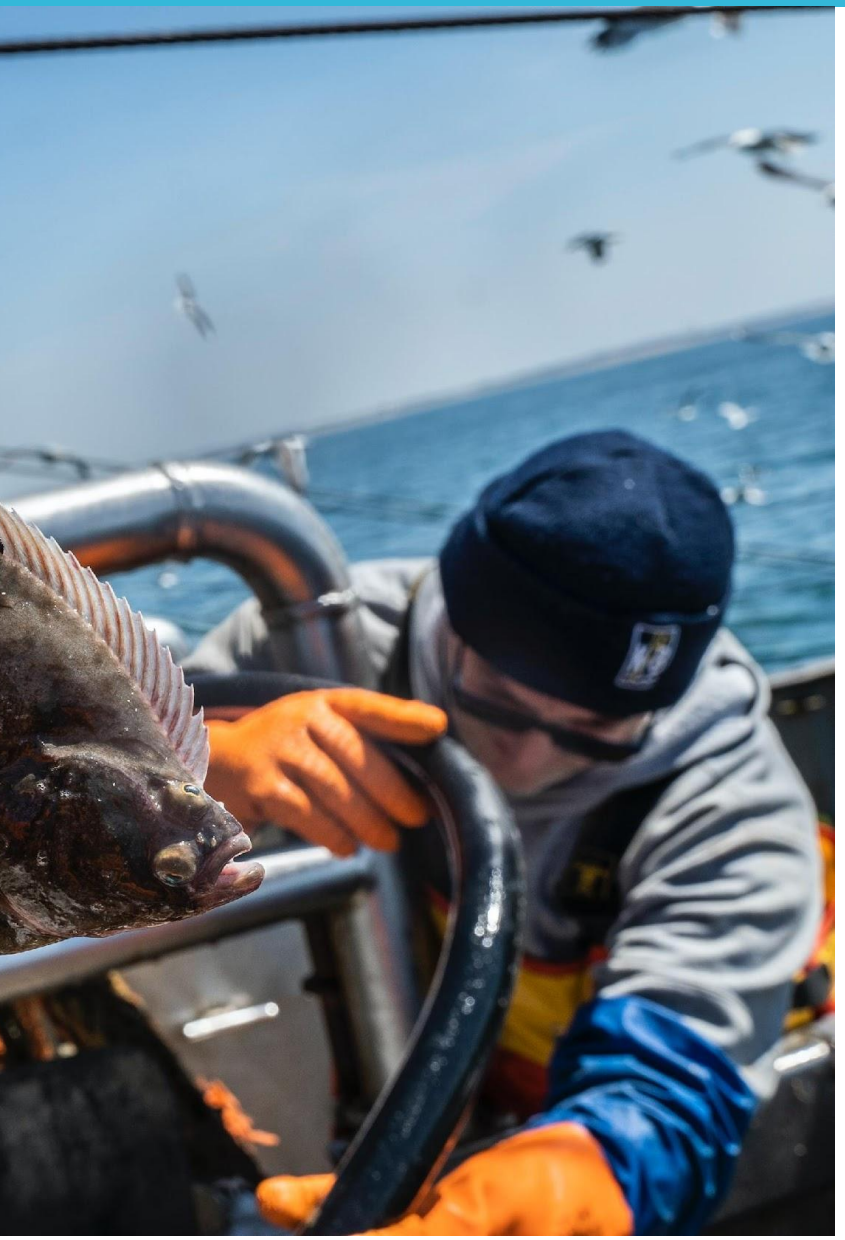
Leveraging data expertise of Intertidal Agency

Outcomes:

- standardized data management practices
- support interoperability with other data efforts in the region

ROSA

Data Governance Program



- Interviews with selected partners completed and draft summary created
- Data glossary in progress
- Data journey for trawls created
- Data meeting with Rutgers scheduled
- Repository review from ROSA report
- Defining repository expectations and criteria
- Discussing regional/cumulative impact assessment framework

ROSA

Data Governance Program

- Data/IP Policy
- Data Management & Sharing Plan for RFP
- Launching the DG committee
  - Terms of reference drafted
  - Thirty-four recruits
  - Kickoff meeting for February 11 m
    - Invitations sent
  - Still recruiting - contact Mike if interested
- Pursuing additional funding

ROSA

OSW Fisheries Funder Coordination Meeting Second Meeting - Nov 2024

Tricia Perez

Offshore Wind and Fisheries Funder Coordination

<u>Objective</u>: Gather Funding Entities on the east coast to optimize research and monitoring dollars for fisheries and offshore wind.

<u>Participants</u>: Federal, state, and non-profit funding entities

Collective Goals

- Coordinated research and monitoring dollars of all east coast funders that **avoids duplication** and **aligns solicitation policies**.
- Offshore Wind Fisheries Research and Monitoring **Data that is Findable, Accessible, Interoperable, and Reusable** (FAIR) to facilitate regional and cumulative impacts assessments and support meaningful solutions to the challenges surrounding responsible ocean co-use.

Actions by ROSA

- Maintaining an updated FishFORWRD Database
- Facilitating communication of funded and planned research
- Providing templates and language

Regional Research Coordination Resources

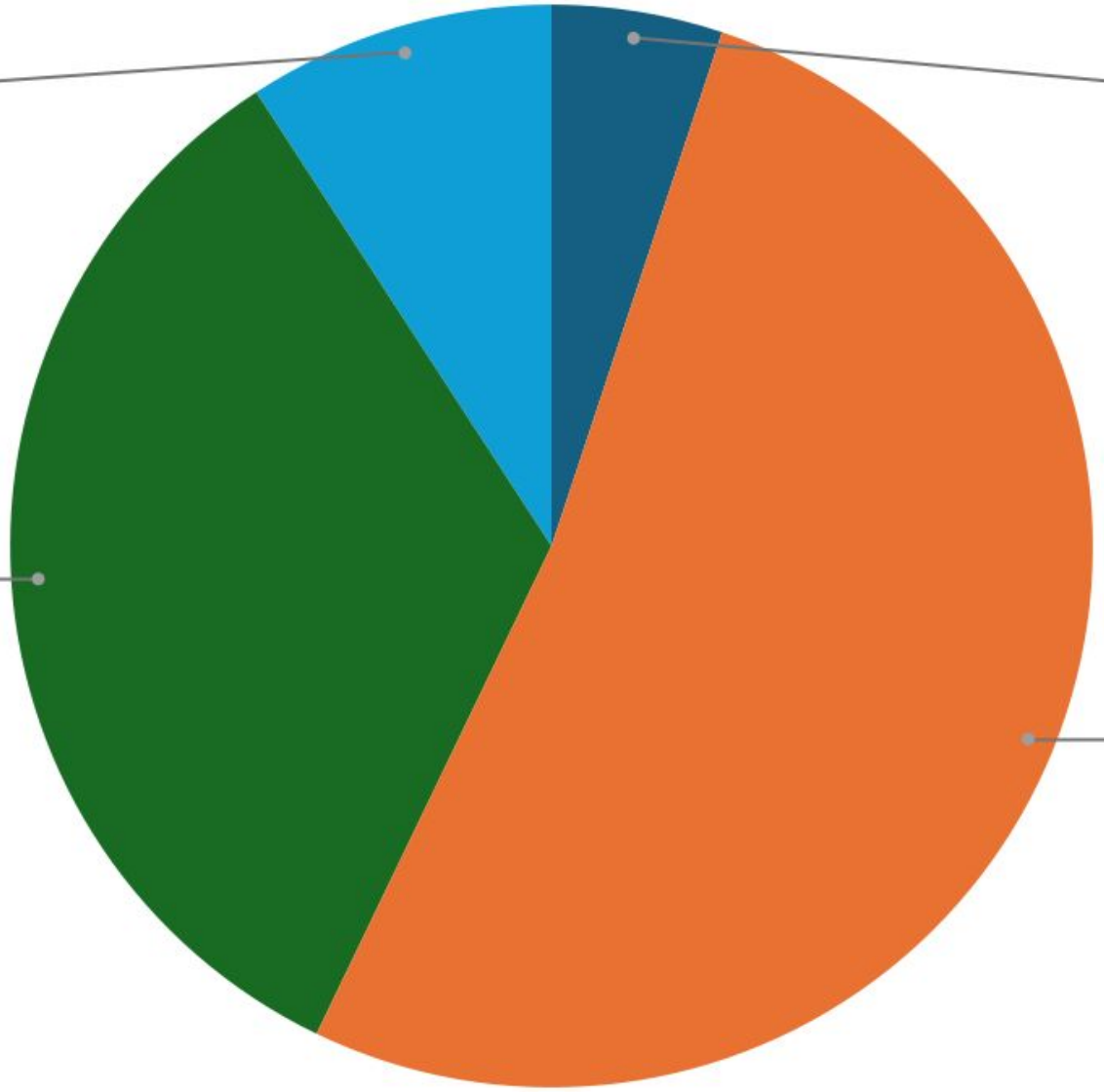
Regional Coordination Request
provides actionable language to promote regional coordination of fisheries and offshore wind research and monitoring efforts via ROSA.

Data Policy
standardized policy designed to advance research utility for decision-making and broaden access to fisheries and offshore wind data.

Data Management & Sharing Plan
formal document that outlines how research data will be handled, stored, shared, and preserved throughout the lifecycle of a project.

ROSA

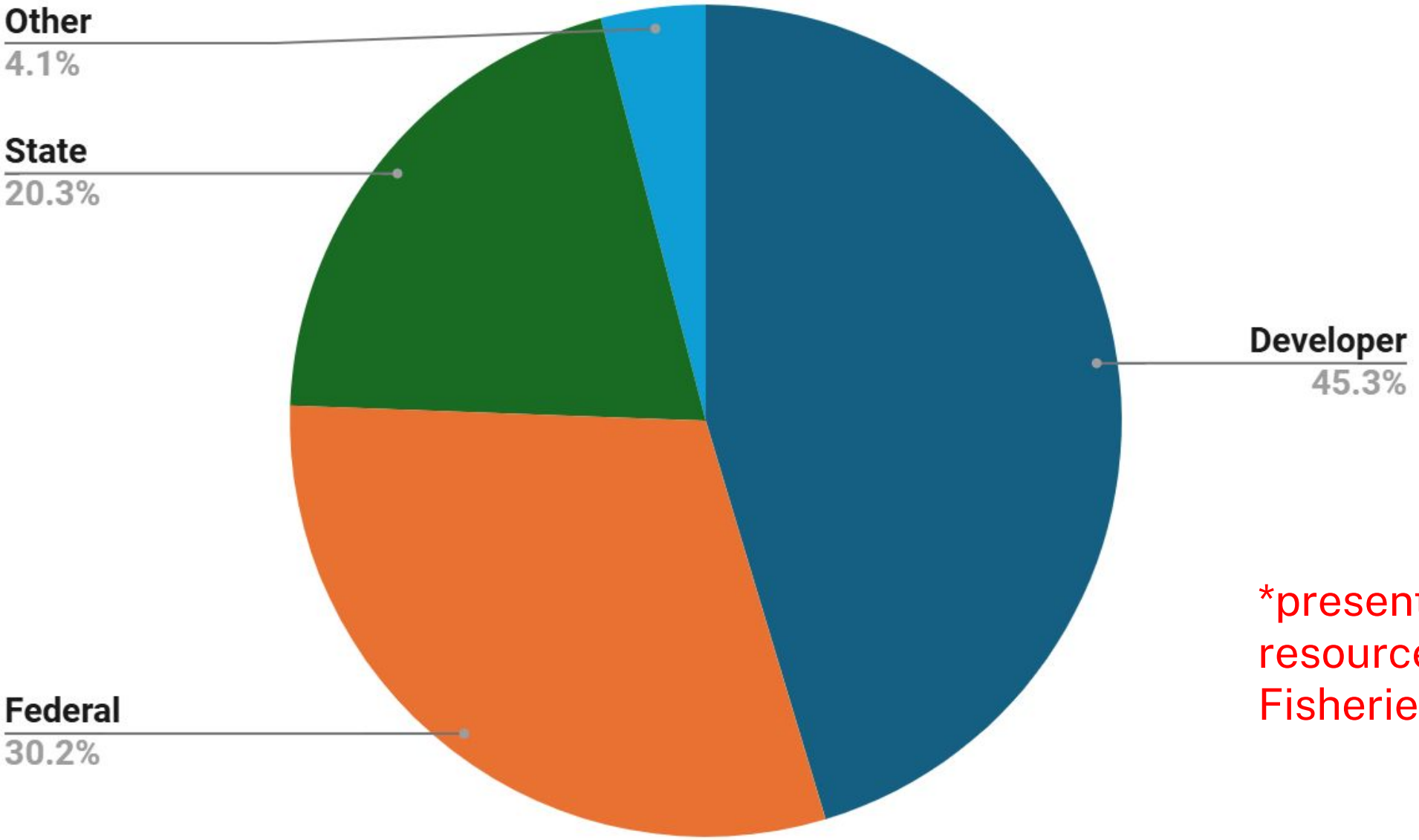
22 Active Funders of Fisheries Research



99
projects

ROSA

26 Active Funders of Research & Monitoring

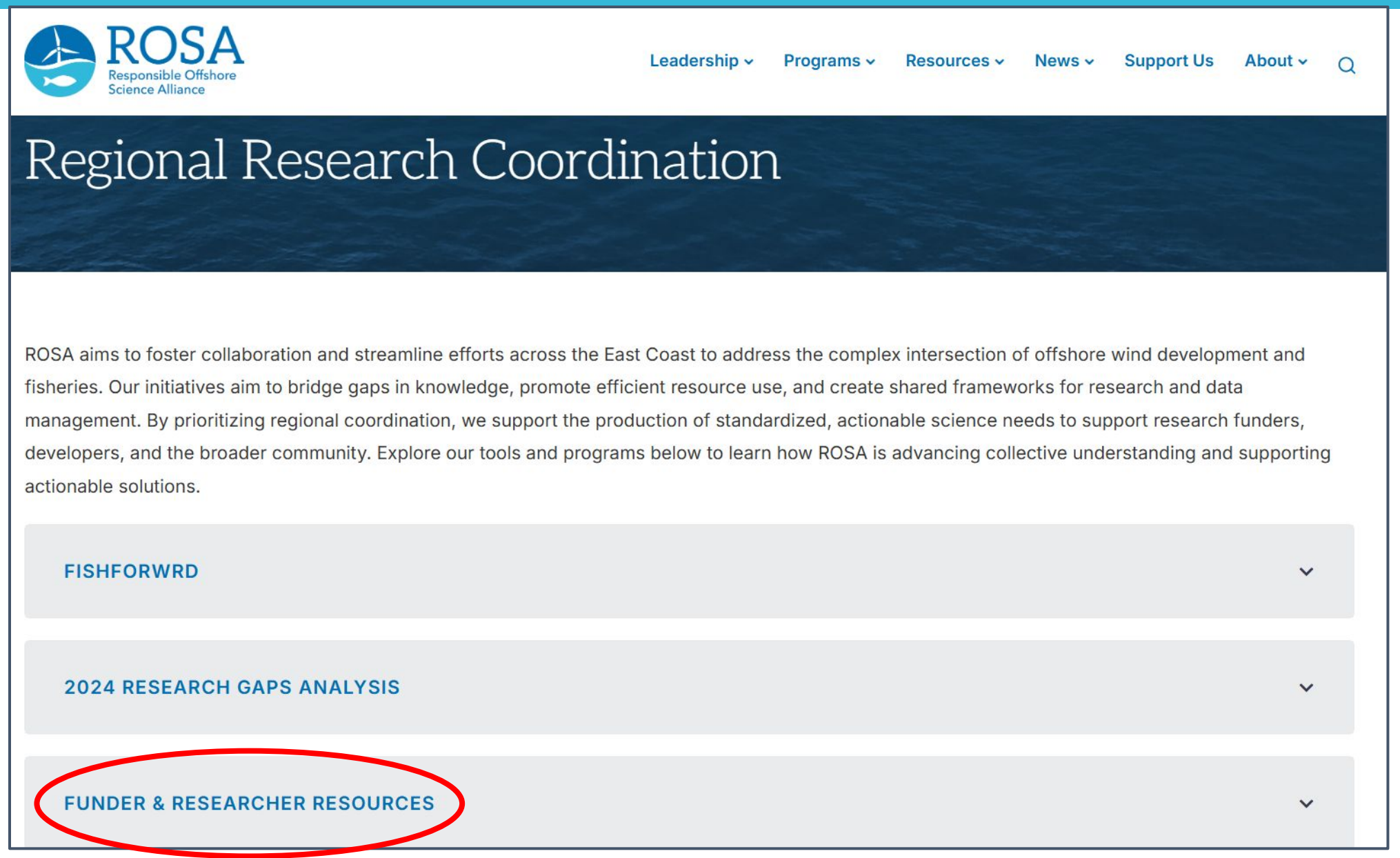


173
projects & surveys

*presented these resources to ACP Fisheries Subcommittee

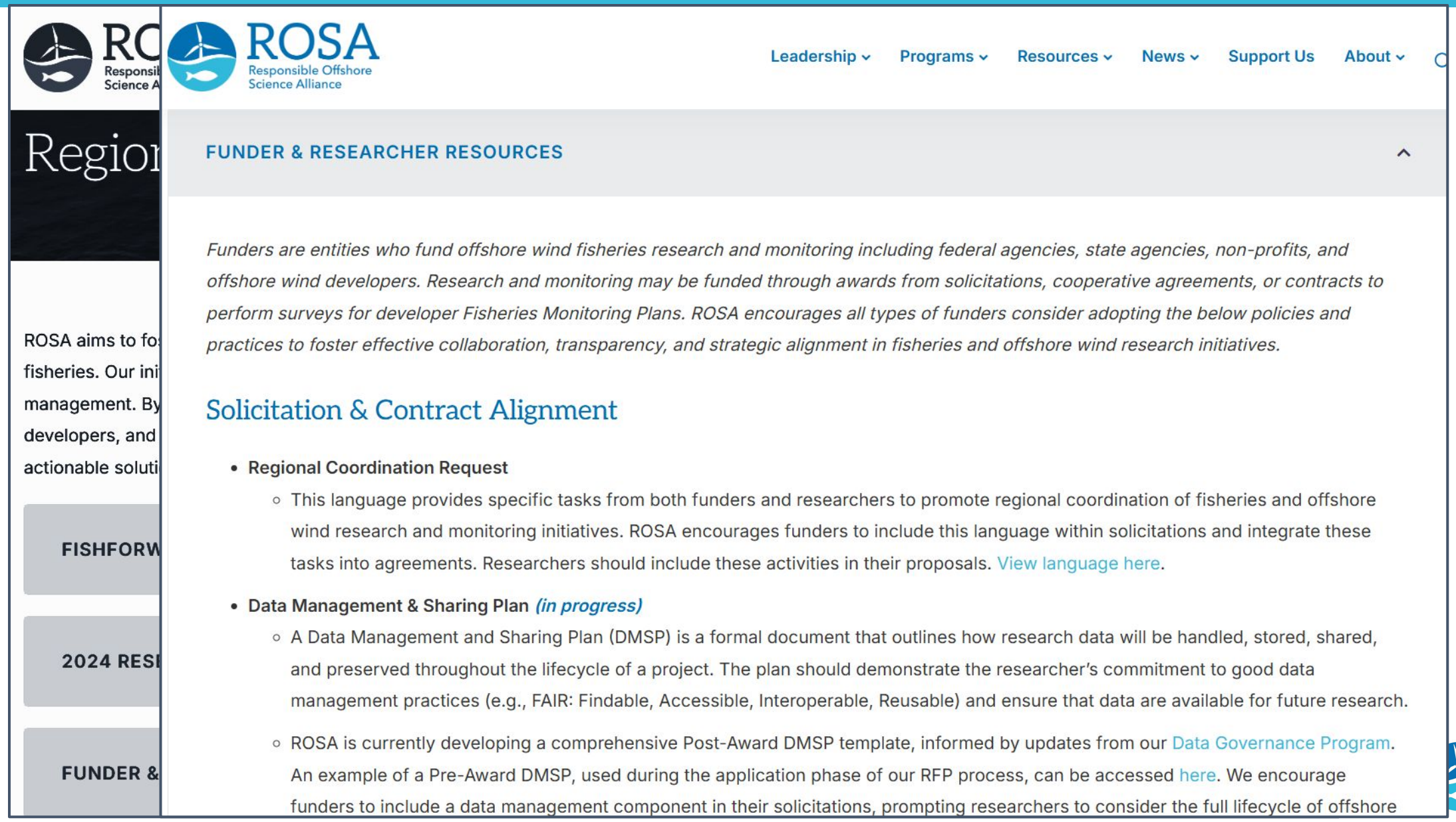
ROSA

rosascience.org/research-coordination



ROSA

rosascience.org/research-coordination



ROSA

Acoustic Telemetry Committee Update

Mike Pol

Acoustic Telemetry Committee

secoora.org

- Acoustic Telemetry Fact Sheet updated and posted to ROSA website: https://www.rosascience.org/acoustic-telemetry/
- Fact Sheet sent to Acoustic Telemetry Committee for review/revision/reactions
- Next meeting planned for mid-February

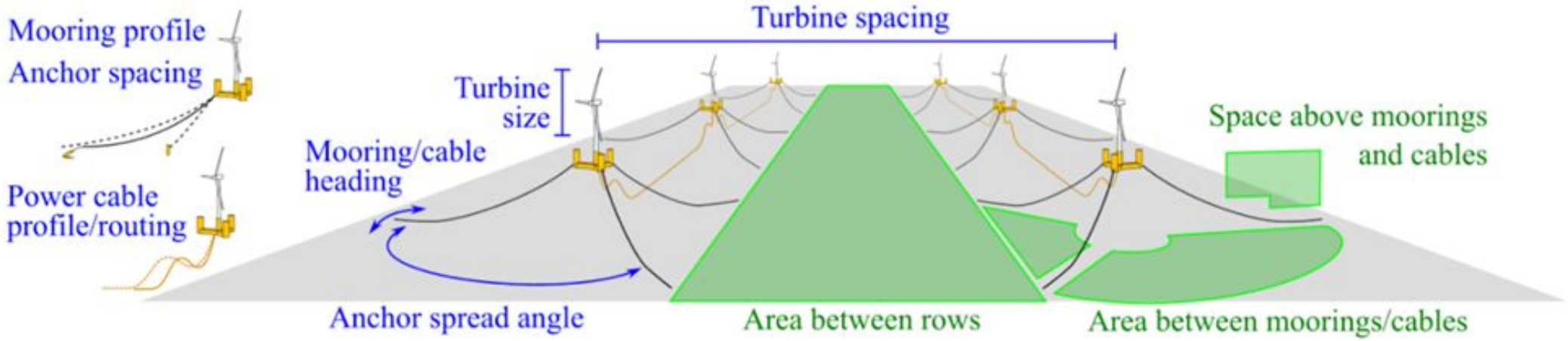
Perchance AI Image Generator: acoustic telemetry, fish

Co-Design Solutions For U.S. Floating Offshore Wind Farms And Fishing Compatibility - Project Update

Mike Pol

Co-Design Solutions

- Project shares experience and knowledge from experienced fishermen with FOSW engineers to evaluate designs for mutual compatibility
- PIs: E. Lozon, R. Davies, K. Ampela (NREL); E. Rzeszowski, D. Brady (UMaine)
- Funded by NOWRDC
- First round of face-to-face interviews completed
  - John Nappo, recreational fishing
  - Dewey Hemilright, pelagic longline, (also bottom longline, gillnetting, fish pots)
  - Four GOM lobster fishermen



Co-Design Solutions

Pelagic longliner, Wanchese, NC

John Nappo

- Interviews were distilled into a report on Priority Focal Fisheries Requirements delivered to NOWRDC in November and approved by NOWRDC and NYSERDA
- Documented spatial requirements, comfort-level ratings, and additional concerns derived from interviews
- Varying amounts of spatial needs across fisheries and between fishermen
- Varying amounts of comfort with fishing close to FOSW infrastructure
- Precision in locations of infrastructure vital to compatibility
- Public report from NREL to be released in the near future
- Engineers will incorporate information and evaluate alternative designs to be shared back to fishermen late 2025

ROSA

Partner Updates

REGIONAL FUND ADMINISTRATOR UPDATE

ROSA ADVISORY COUNCIL

DECEMBER 10, 2024

Regional Fund Administrator Team

BrownGreer Orran Brown, Jr. (project lead)	Independent third-party administrator emphasizing accessibility and transparency
	Design and develop an equitable and transparent framework for Compensation Fund and associated claims process
	Seek significant stakeholder input for feedback on design elements
Carbon Trust Olivia Burke (project manager)	Engagement lead for "1-2-1" conversations, caucus group meeting facilitation
	Working with local engagement officers for RFA feedback
	Supporting the convening of caucus group meetings during transition to the RFA
Consensus Building Institute ("CBI") Pat Field	Convenes the Design Oversight Committee ("DOC")
	General convening support, strategic advisement, and project management
	Supports the transition to the RFA
Special Initiative on Offshore Wind ("SIOW") Kris Ohleth	Convenes the For-Hire Committee ("FHC")
	Convenes the 11-States working group
	Supports the transition to the RFA
	Shares administrative and fiscal oversight with NYSERDA

Governing Committees

Design Oversight Committee ("DOC")

Commercial Fishing Industry

- Hank Soule, Vince Balzano, Joe Gilbert, Roy Diehl, Sam Martin, and Spencer Headley
- ***Alternate Members:*** *Beth Casoni, Jerry Leeman, Bonnie Brady, Jeff Kaelin, and Lane Johnston*

States

- Dan McKiernan, Joe Cimino, and Todd Janeski
- ***Alternate Members:*** *Erin Wilkinson, Julia Socrates, and Carrie Kennedy*

Offshore Wind Industry

- Brian Krevor, Emily Rochon, and Rick Robins
- ***Alternate Members:*** *Ruth Perry, Doug Copeland, and Ross Pearsall*

For-Hire Committee ("FHC")

Recreational Fishing Industry

Rick Bellavance, Bob Rush, and Rom Whitaker
Alternate Member: *Mike Cerchio*.

States

Renee Zobel
Alternate Member: *Joe Cimino*

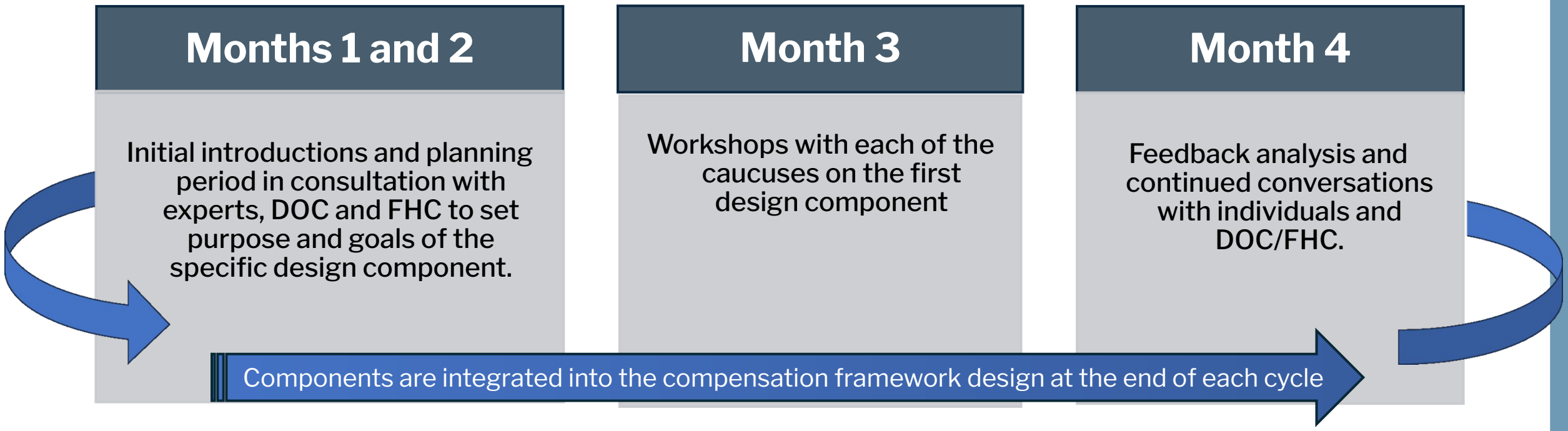
Offshore Wind Industry

Pending final determination by this caucus

***** Each Committee will also have ex-officio members as appropriate from at least BOEM, NOAA, NYSERDA (RFA Contract Manager)**

Next few months…

Design and Development Phase Cycle:



Contact Information for Further Engagement

BrownGreer

RFA@BrownGreer.com

The Carbon Trust

Olivia.i.burke@carbontrust.com

NYSERDA

morgan.brunbauer@nyserda.ny.gov

RWSC

Regional Wildlife Science Collaborative for Offshore Wind

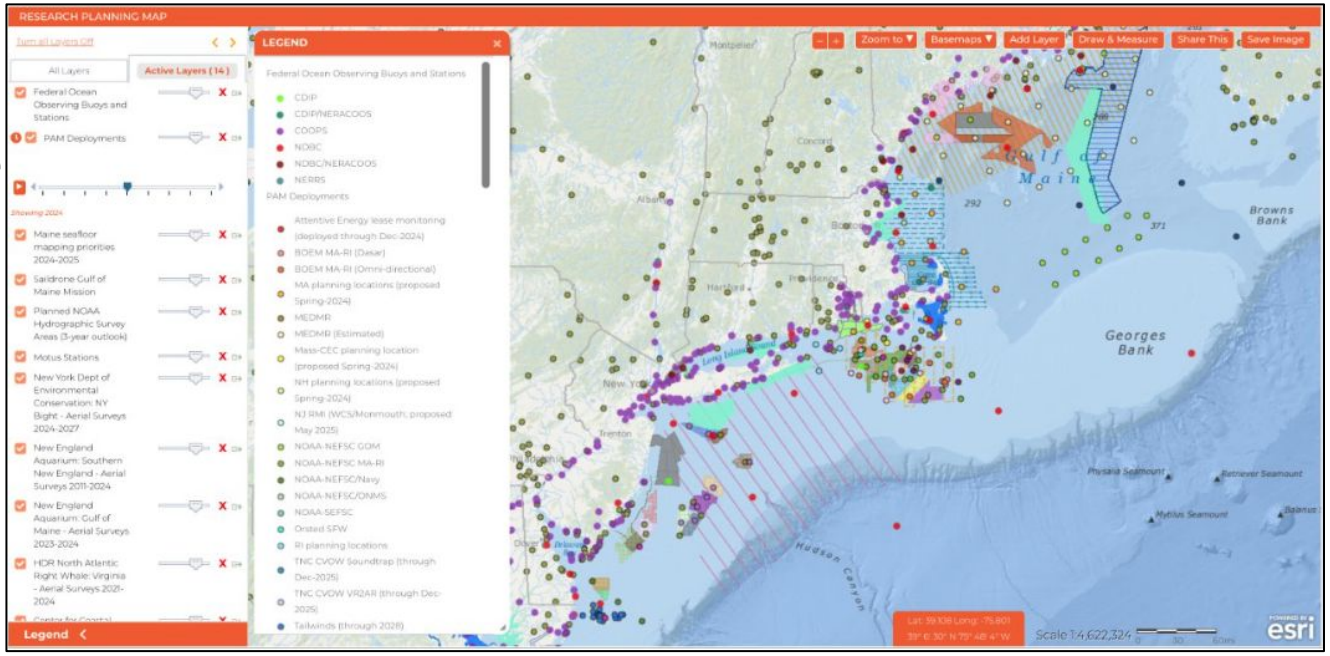
Protected Fish Subcommittee: Acoustic Telemetry Receiver Map Layer

ROSA Advisory Board Meeting

December 19, 2024

Research Planning Map

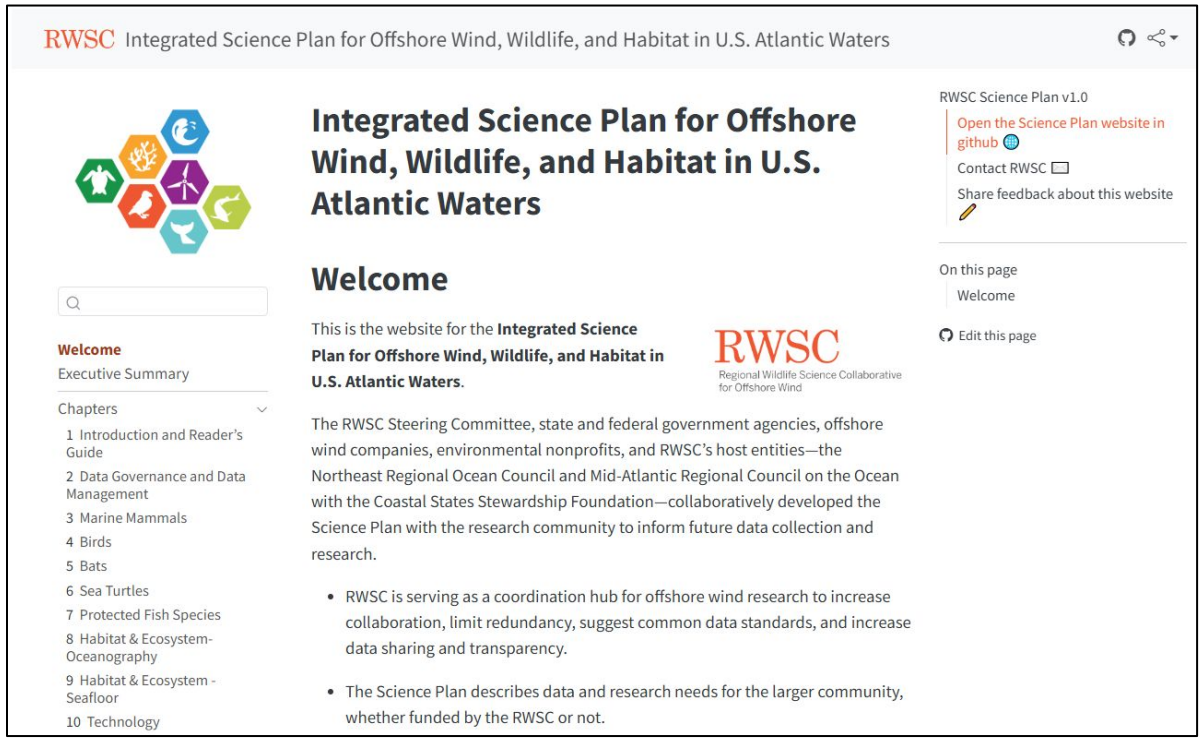
- https://rwsc.org/map
- Shows the locations of where data are being collected/research conducted
- Includes POC for each effort
- Where available, includes links to:
  - Entry in RWSC Database
  - Where data are stored



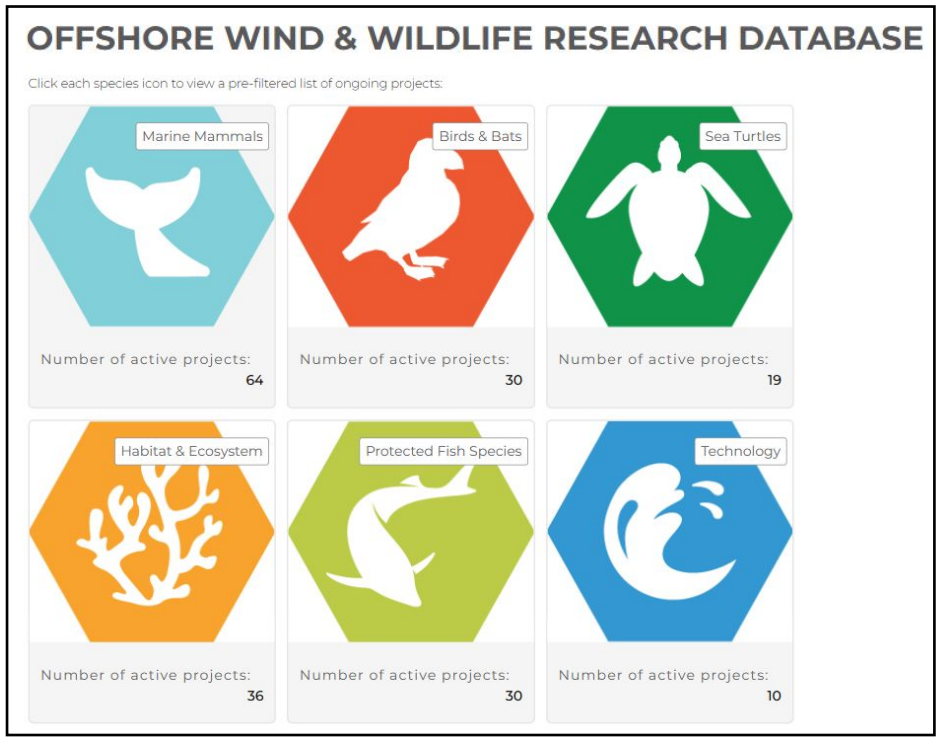
Introduction to the RWSC Research Planning Map Webinar Recording Here

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

Science Plan and Database



https://rwsc.org/science-plan/



https://database.rwsc.org/

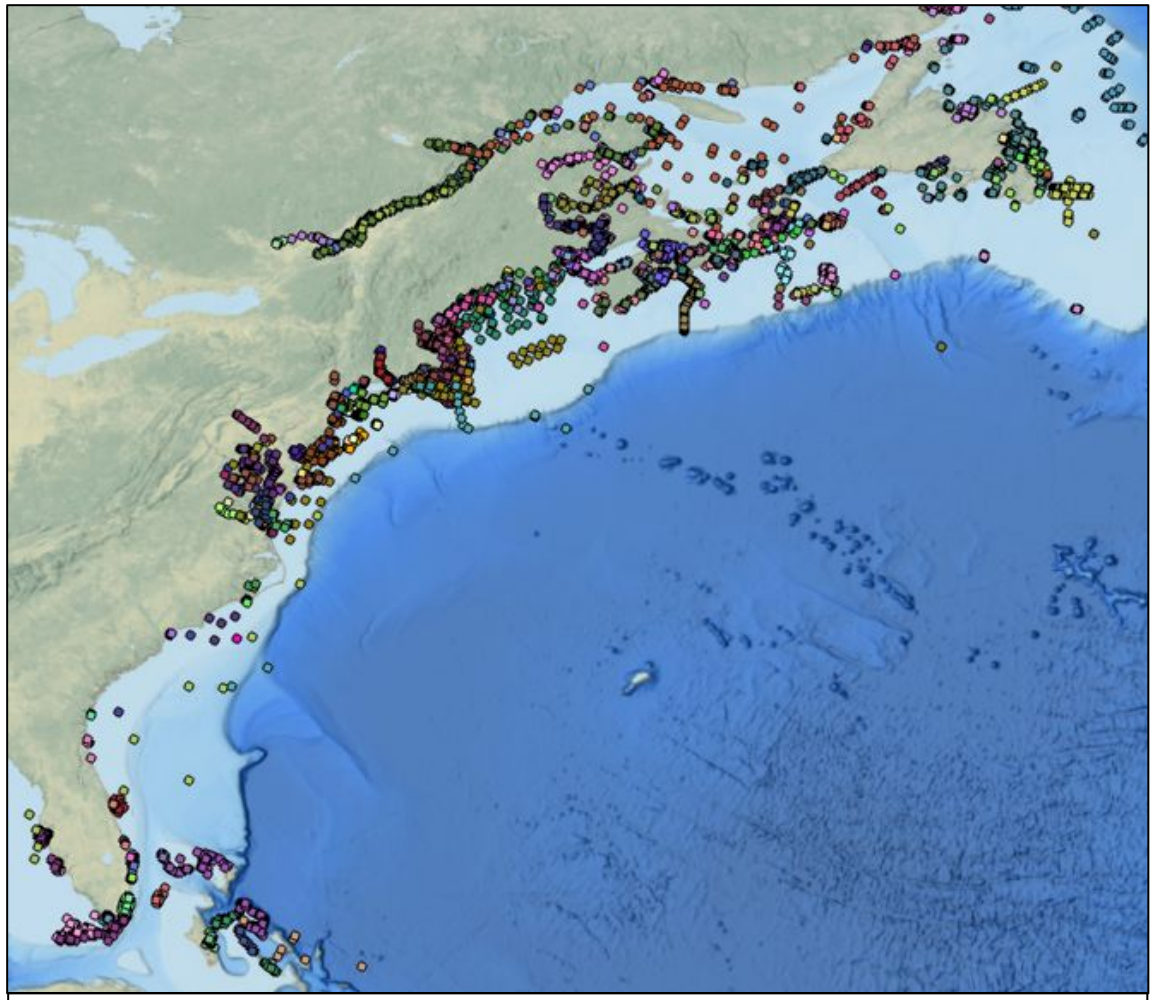
RWSC
Regional Wildlife Science Collaborative for Offshore Wind

AT Research Planning Coordination

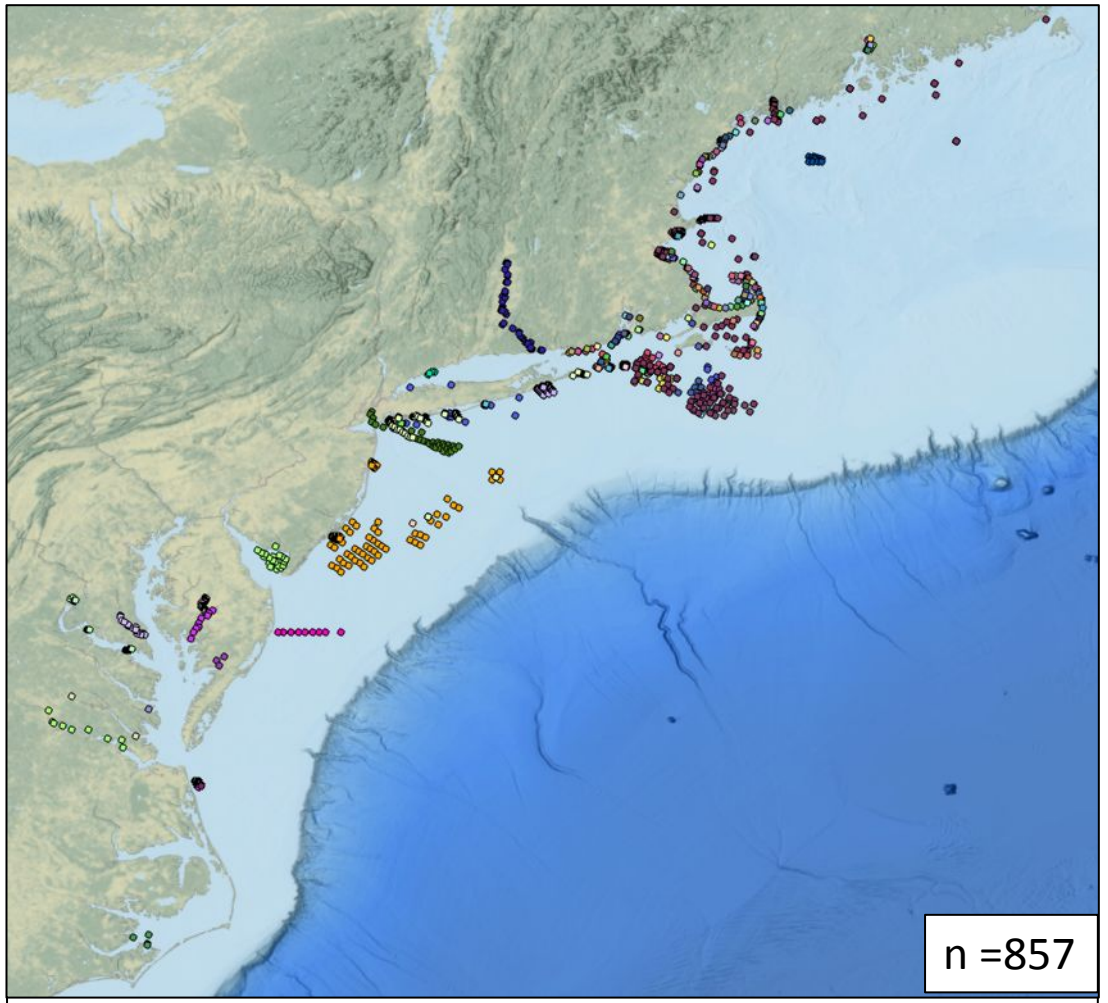
- Very collaborative effort
  - ACT-MATOS
  - OTN
  - ROSA
  - RWSC Subcommittees
  - Researchers
  - Industry
  - FACT Network

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

DRAFT Acoustic Telemetry Receiver Map Layer



All Receivers: ACT-MATOS, OTN & RWSC



Southern New England/Mid-Atlantic Private Receivers

Metadata Pop-Up

When you click on a receiver, the following project information will pop up:

- Operator
- POC and POC Email Address
- Project Name
- Site/Station number
- Latitude
- Longitude
- Exact Locations (Y/N)
- Instrument
- Co Deployments
- Status (Planned/Proposed/Active)
- Deploy Start Date
- Deploy End Date (projected if ongoing)
- Seasonality of Receivers
- Project in RWSC Database
- Date Submitted
- Date Added
- Date Last Updated
- Project in OTN/ACT-MATOS/FACT Network
- Archival or Real Time
- PI and PI Email Address

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

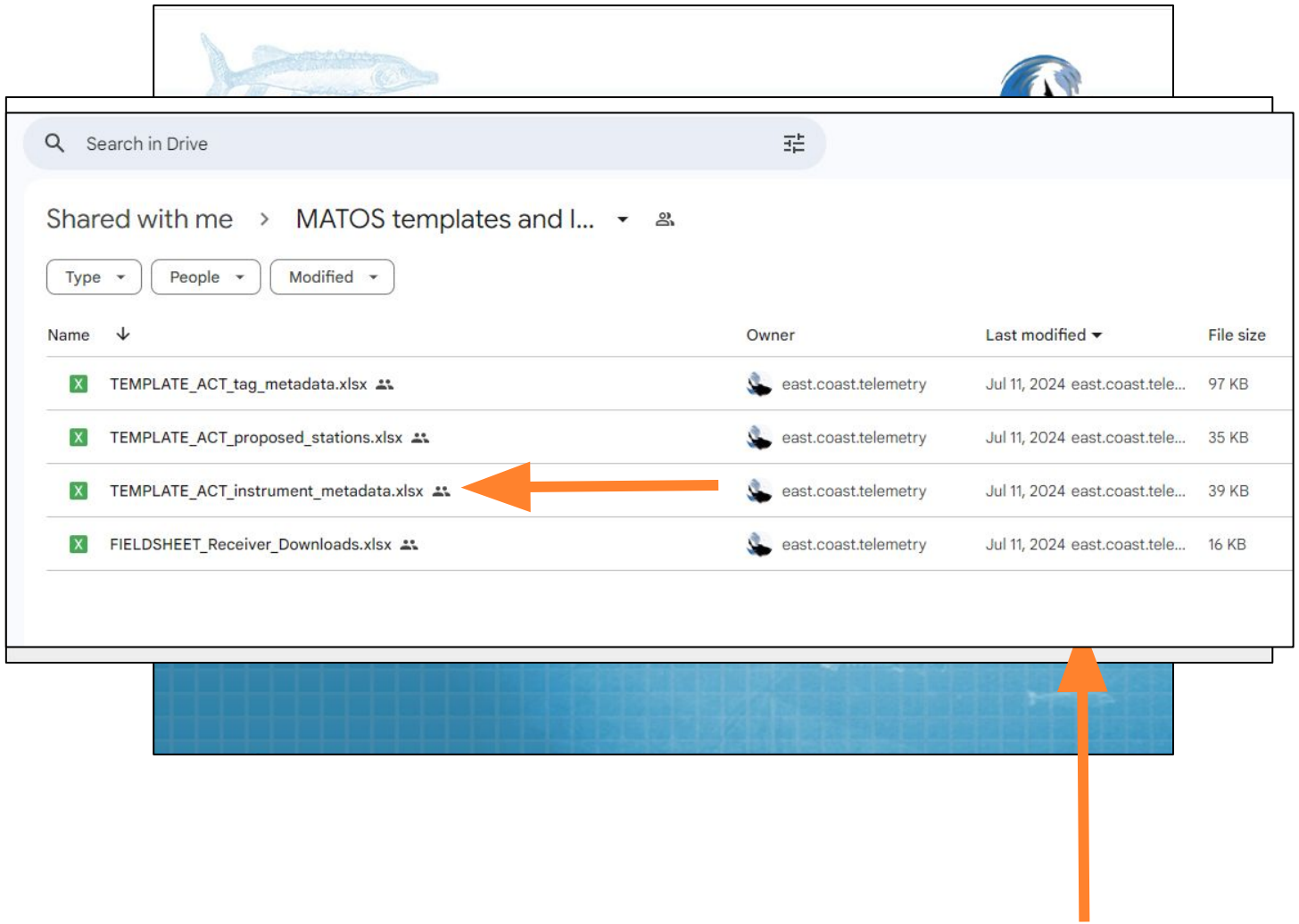
Don’t See Your Receivers in the Draft Layer?

- Already participate in ACT MATOS and your project is set to public, no action is required!
- Already participate in ACT MATOS and your project is set to private:
  - Email Kim (east.coast.telemetry@gmail.com) and request that your receiver locations be shared with the RWSC for inclusion on the research planning map. Please cc me (jordan.katz@noaa.gov).
- Participate in the FACT Network:
  - Email Joy (joy.Young@thefactnetwork.org) and request the Google Form Link to let FACT know that you would like your project to be included in the map. Please cc me (jordan.katz@noaa.gov).
- Do not participate in a regional node:
  - Email us (admin@rwsc.org) with your receiver locations and the additional information shown on the previous slide. Please cc me (jordan.katz@noaa.gov).

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

MATOS Forms Available for Download

1. https://matos.asascience.com/
2. Click “Submit Data”
3. Click “ Metadata Templates and MATOS Loading Instructions Hyperlink
4. Download TEMPLATE_ACT_instrument_metadata.xlsx



RWSC
Regional Wildlife Science Collaborative for Offshore Wind

Additional Acoustic Telemetry Resources

Acoustic Telemetry Data Management & Storage Recommended Practices GitHub Page

- https://rwscollab.github.io/at-data-mgmt/

Acoustic Telemetry Resources Page

- https://rwsc.org/acoustic-telemetry/

Acoustic Telemetry Handout

- https://rwscorg.sharepoint.com/sites/ProtectedFishSpecies/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FProtectedFishSpecies%2FShared%20Documents%2FInternal%20Files%20%2D%20Protected%20Fish%20Species%20Subcommittee%2FACT%2FAT%20%2D%20one%20pager%20v3%2Epdf&parent=%2Fsites%2FProtectedFishSpecies%2FShared%20Documents%2FInternal%20Files%20%2D%20Protected%20Fish%20Species%20Subcommittee%2FACT&p=true&ga=1

Under Development by Beth Bowers and Matt Ogburn (ACT/SERC)

- Acoustic Telemetry and Offshore Wind Best Practices Document

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

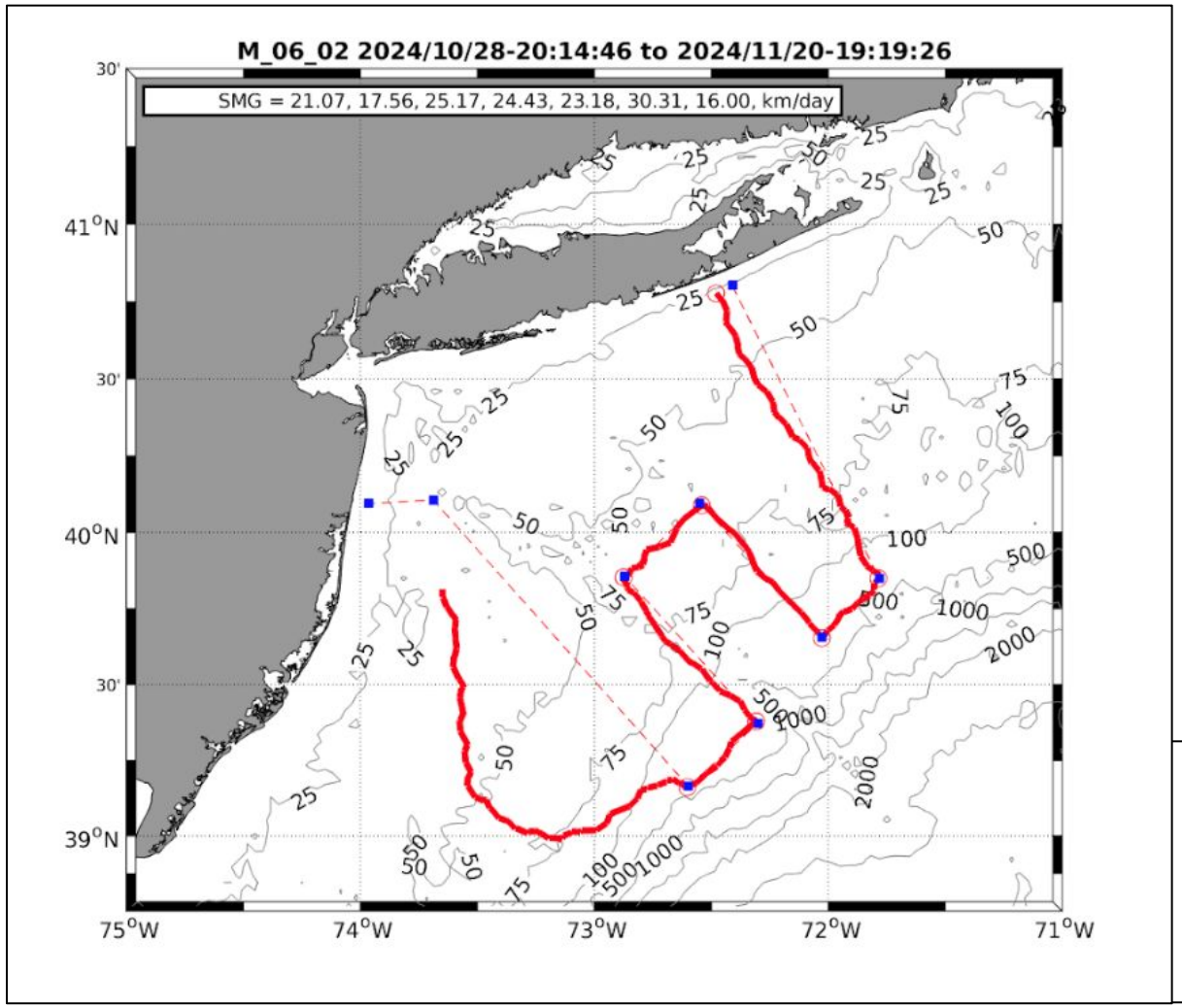
Stay Connected with the Subcommittee

NOAA Fisheries

- Subscribe to our email list at rwsc.org, and select that you are interested in the Protected Fish Subcommittee Meetings.
- See Subcommittee Documents and past meeting materials on our SharePoint page.
- Next full meeting:
  - Wednesday, February 12, 2025 from 1-3pm ET

RWSC
Regional Wildlife Science Collaborative for Offshore Wind

Mobile Receivers



- Mobile receivers/gliders outfitted with receivers will be included on the map.
- For recurring glider deployments, planned track lines will be provided

- Stony Brook University
- SoMAS Glider Project
- Charles Flagg and Ashley Nicoll

ROSA
Responsible Offshore
Science Alliance

Shellfish Stock Enhancement

Atlantic Surfclam Mitigation Workshop Summary

Key Points from the Workshop

November 20, 2024

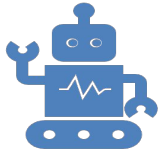
Workshop Overview

- Date: November 20, 2024
- Participants: 43 stakeholders including fishing industry reps, regulators, developers, and academics.
- Focus: Mitigation for OSW impacts on the surfclam fishery via stock enhancement.
- Funders and Organizers: Atlantic Shores Offshore Wind, MOCEAN, NYSERDA, NJ DEP, Special Initiative on Offshore Wind, Consensus Building Institute and Surfside Foods

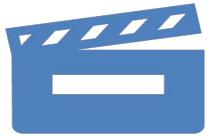
Workshop Objectives

- Review research on stock enhancement viability.

- Establish mitigation standards and stakeholder roles.



- Explore scenarios and practical steps for regional scaling.



- Develop immediate, short-term, and long-term action plans.

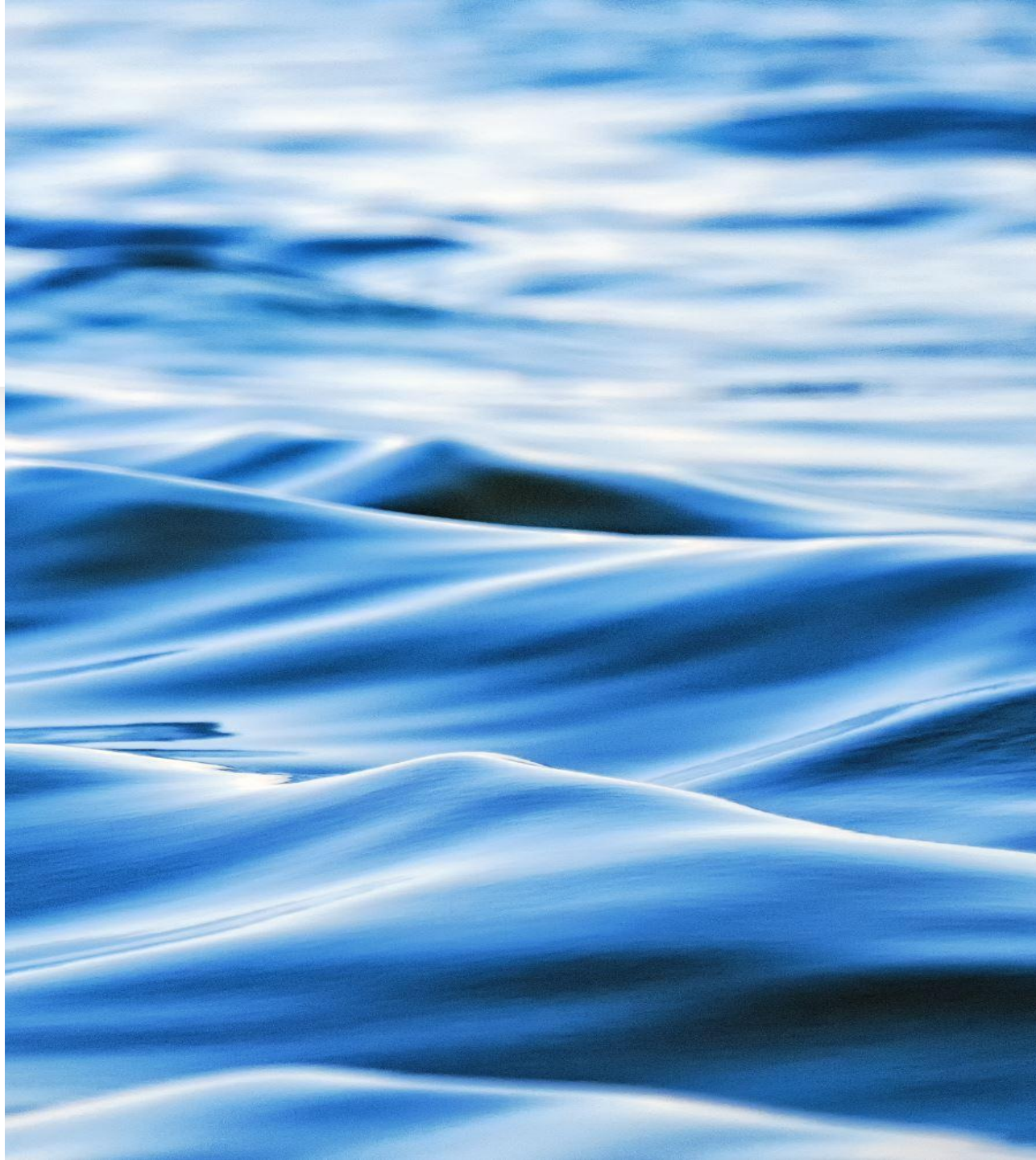
Key Assumptions and Rules

Assumptions:

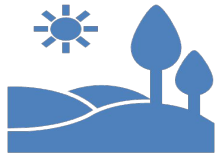
- Surfclam seeding is technically feasible.
- OSW integration is a desired mitigation strategy.

Rules:

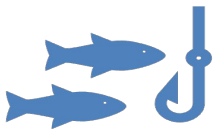
- Focus on solutions, respect, and actionable discussions.
- Avoid debates on OSW or fishing merits.



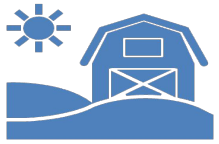
Insights from Research



- OSW affects 2.35M acres in the U.S. Mid-Atlantic.



- Revenue loss: $1M–$5M annually for surfclam harvesters.



- Hatchery scalability challenges: $4M–$15M for 1M bushels.

- To Do: Advances in habitat modeling and seeding technologies.

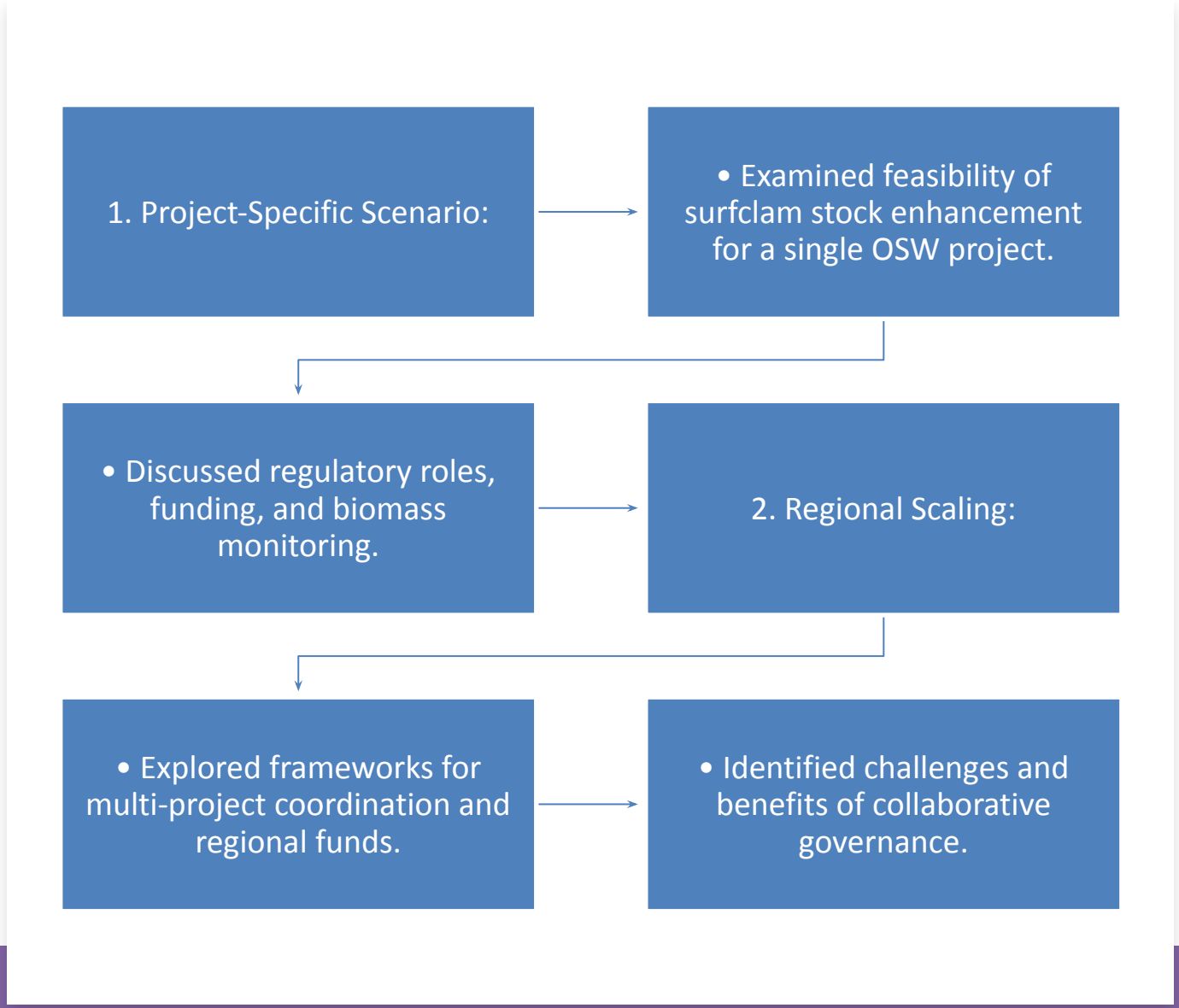
Compensatory Mitigation Standards

• Mitigation must be in-kind, measurable, and transparent.

• Long-term financial and legal assurances required.

• Regional coordination enhances cost-effectiveness and impact.

Thought Experiments



Actionable Next Steps

1-Year:

• Pilot programs for seeding.

• Develop clear regulatory guidance.

• Coordinate with stakeholders on funding models.

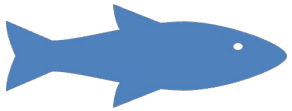
3-Year:

• Scale pilot projects regionally.

• Establish comprehensive funding and monitoring frameworks.

• Transition to long-term mitigation programs.

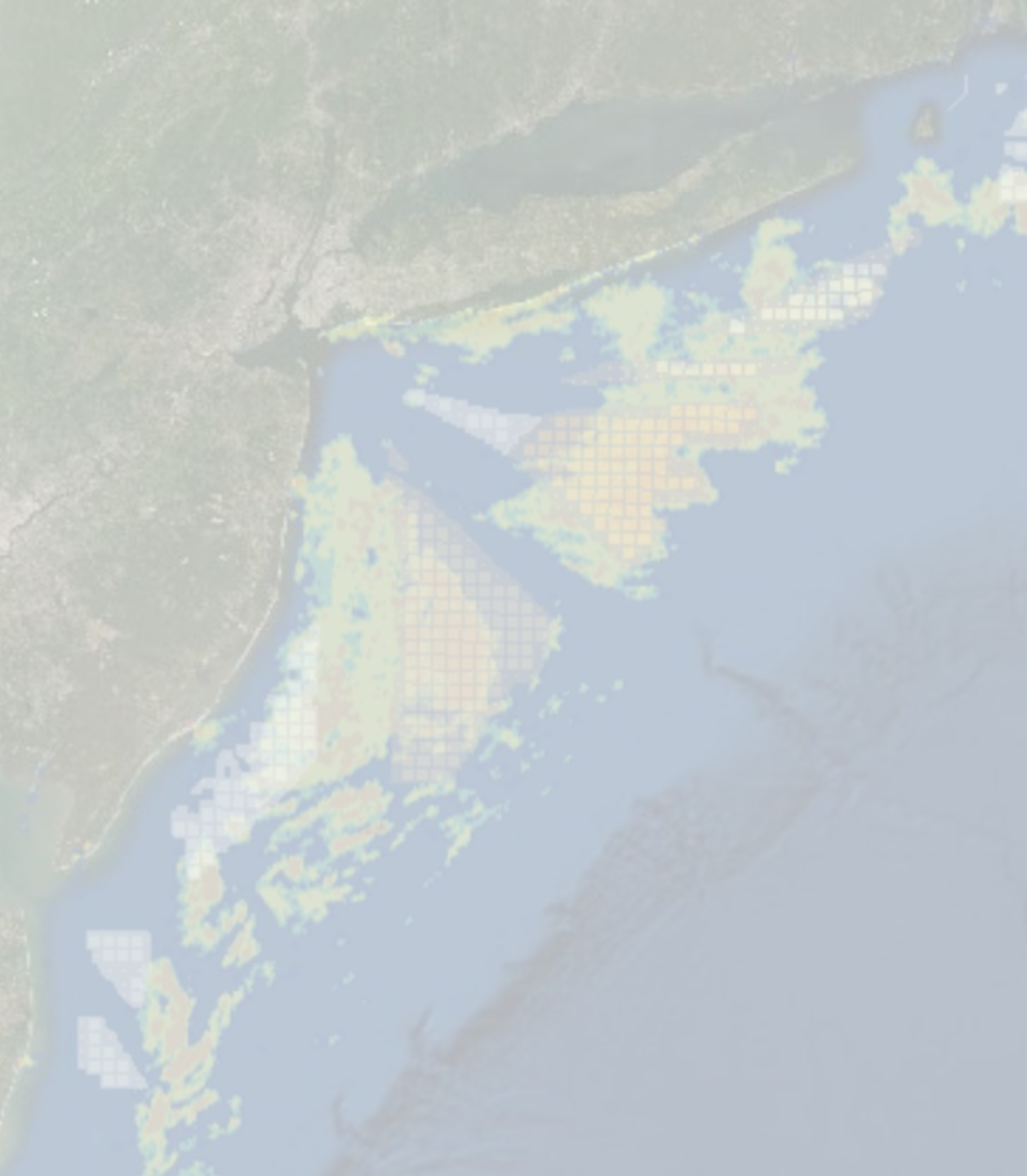
Closing Remarks



• Collaboration is critical for balancing OSW and fishery needs.

• Transparency and stakeholder alignment drive program success.

• A detailed Mitigation Workshop Summary expected complete for distribution January 2025.



State of Surfclam Stock Enhancement Research

Daphne Munroe & Sarah Borsetti
Andrew M. Scheld & Caela Gilsinan

ROSA Advisory Council
December 19, 2024

VIMS | William & Mary
Virginia Institute of Marine Science

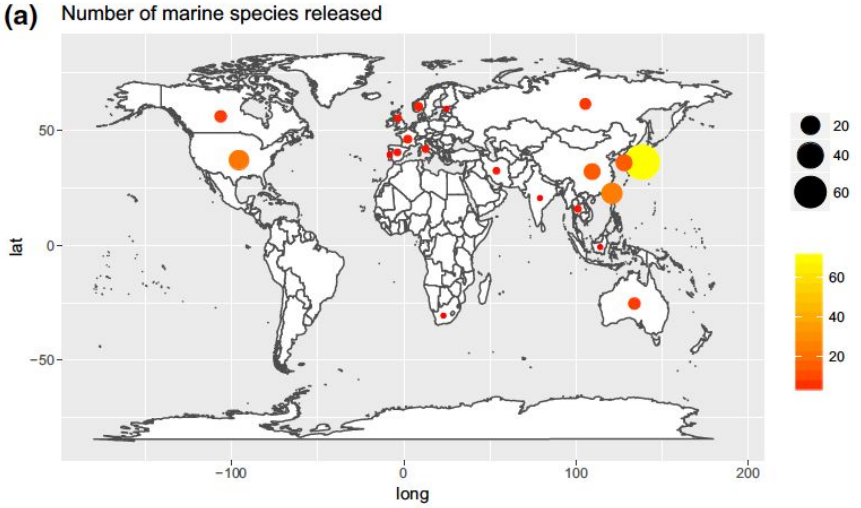
Rutgers
School of Environmental and Biological Sciences

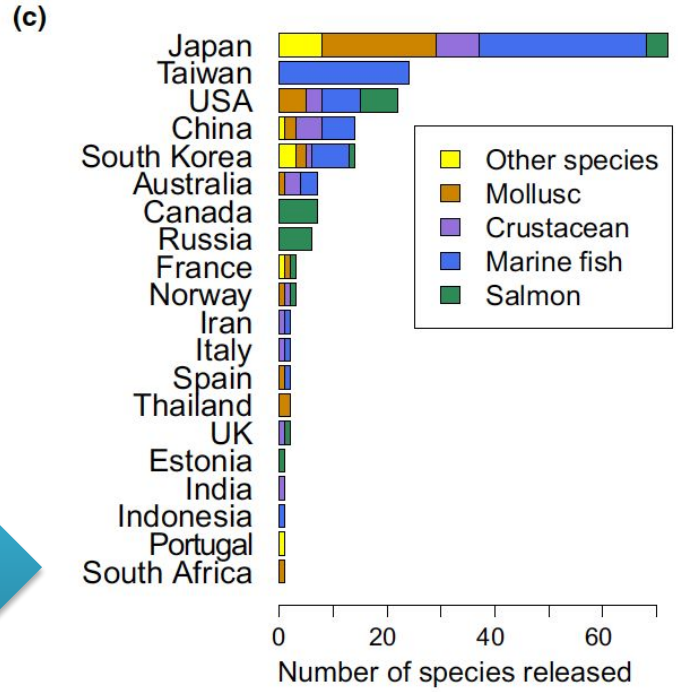
Hatcheries to Enhance Wild Fisheries

- Stock enhancement for >180 species globally
  - US released 22 marine species (e.g., 30-40% Alaskan salmon harvest hatchery produced)
  - Conservation & production motivations

- Common in finfish
  - Salmon hatcheries
  - Japanese scallop

- Is this farming or fishing?





Kitada 2018

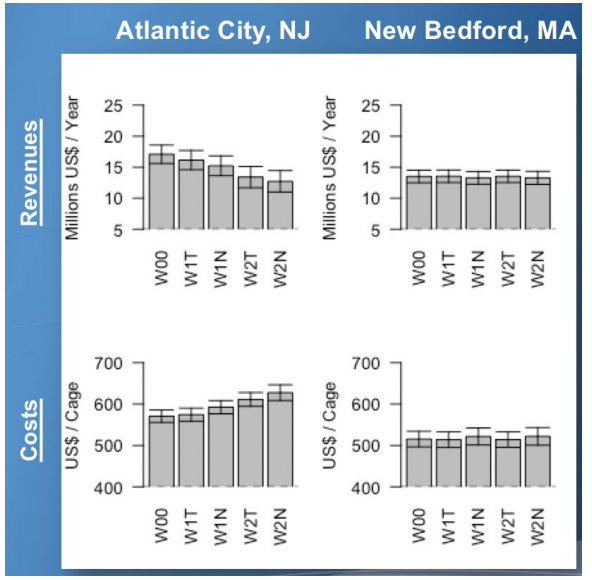
Predation
Hunting, fishing, scavenging

Protection
Herding, ranging, ranching

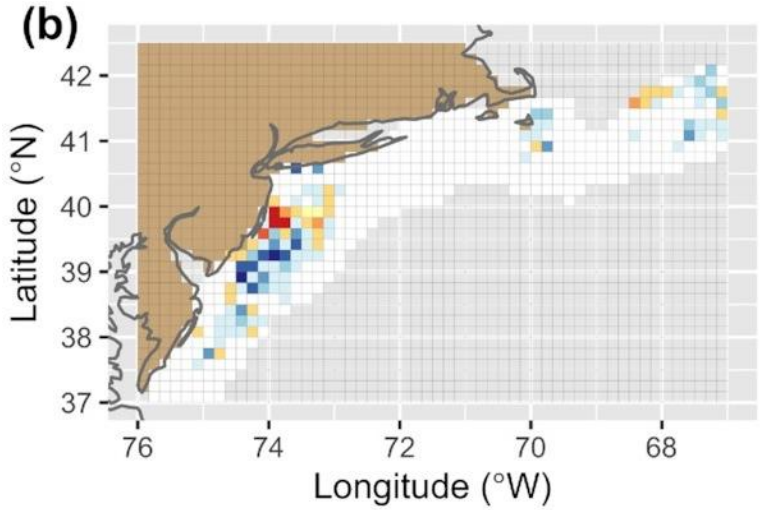
Domestication
Breeding, husbandry, culturing

Background

- 2.35M acres leased for offshore wind development in U.S. Mid-Atlantic and Northeast
  - Atlantic surfclam fishery revenue losses estimated at 3-15% ($1M - $5M annually), concentrated in NJ
  - Hatchery produced Atlantic surfclam could be used to offset impacts → provision of substitute resources (US Council of Environmental Quality, 40 CFR 1508.1(s))



Offshore wind development



SCAN
PROJECT WEBSITE

ICES Journal of Marine Science, 2022, **79**, 1801–1814
DOI: 10.1093/icesjms/fsac109
Advance access publication date: 20 June 2022
Original Article

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

The Atlantic surfclam fishery and offshore wind energy development: 2. Assessing economic impacts

Andrew M. Scheld[1,*], Jennifer Beckensteiner[1,2], Daphne M. Munroe[3], Eric N. Powell[4], Sarah Borsetti[3], Eileen E. Hofmann[5] and John M. Klinck[5]

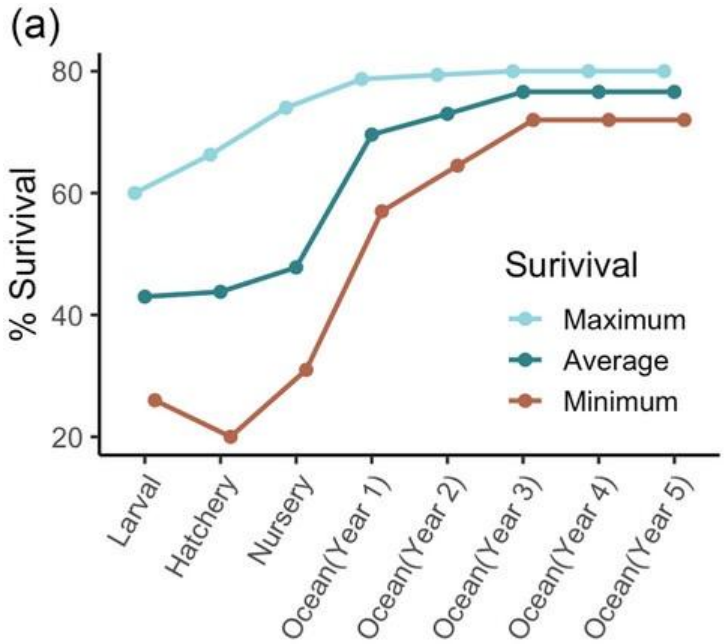
Gilsinan et al. 2024

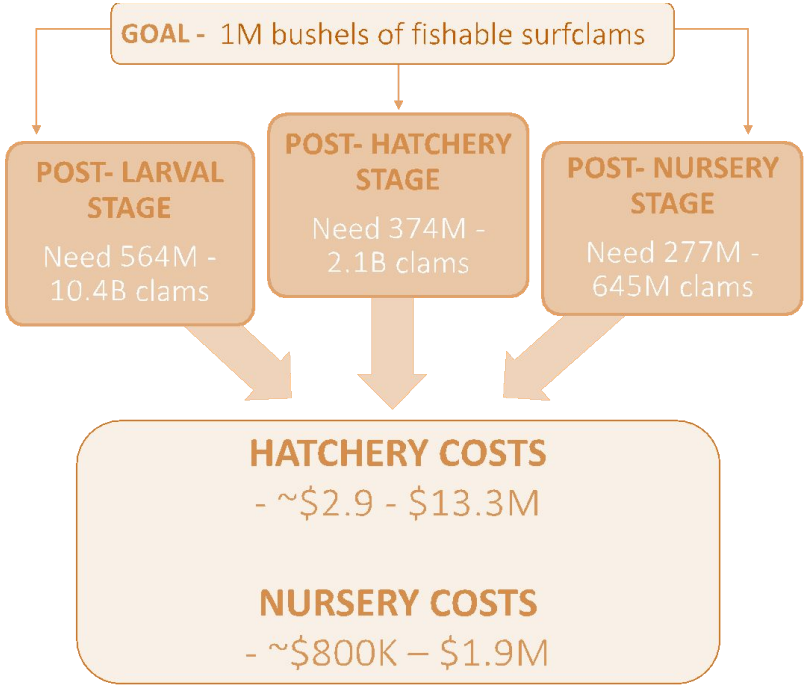
VIMS | William & Mary
Virginia Institute of Marine Science

- Desktop analysis to evaluate scale needed to produce 1M bushels of market-size surfclam (~50-60% recent landings)

- Considered:
  - Hatchery construction, operation, and maintenance costs
  - Surfclam growth, survival in hatchery & nursery

- Data gathered through literature review & interviews

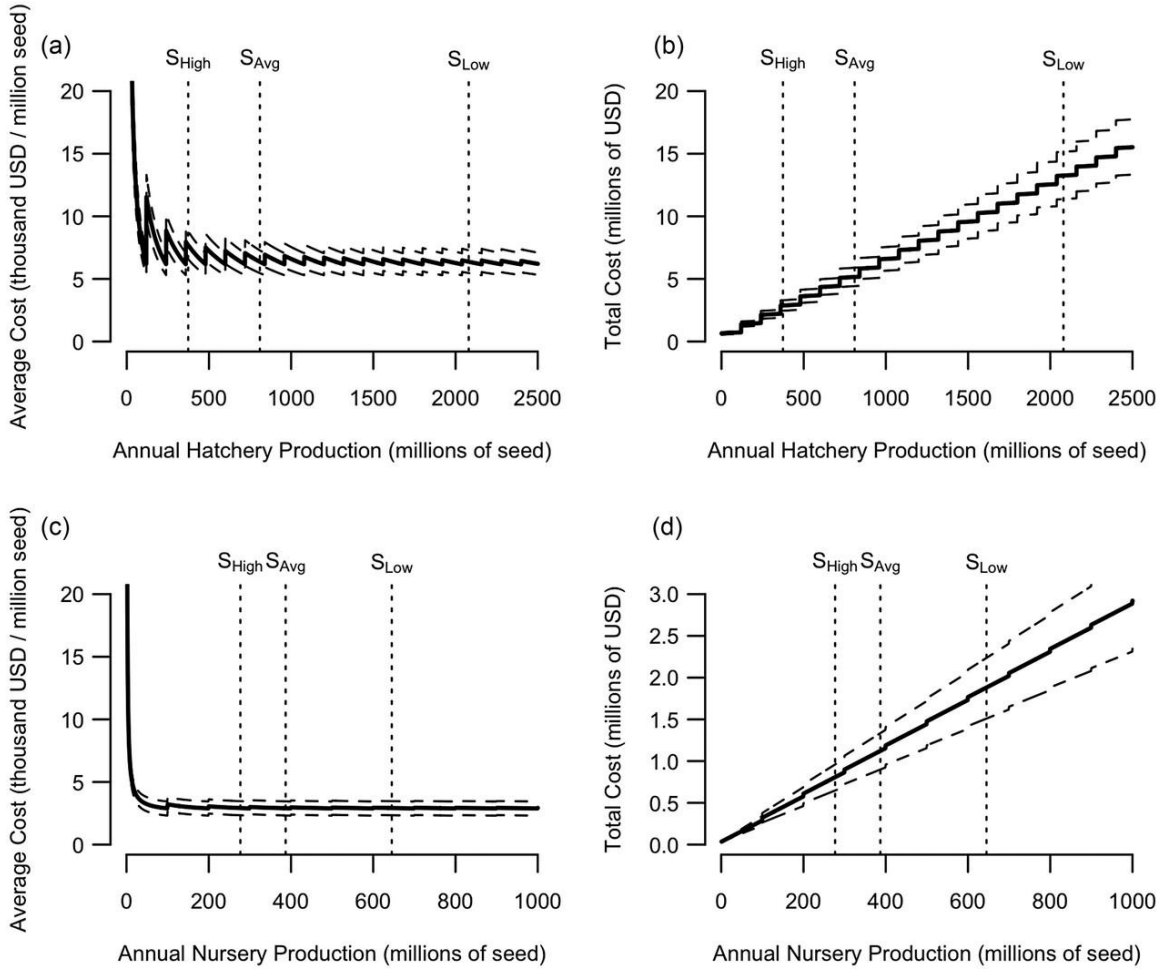




Production stages			
Larval	Hatchery	Nursery	Ocean
Metamorphosis: 27 days Final size: 242µm Survival: 43%	Duration: 62 day Initial size: 1.5mm Final size: 12.3mm Growth rate: 0.2 mm/day Survival: 44%	Duration: 266 days Initial size: 17mm Final size: 41mm Growth rate: 0.12mm/day Survival: 48%	Duration: 5 years Size required: 120 mm Clams/bushel: 88 Bushels: 1,000,000 Total clams: 88,000,000 Survival: 57-80%

SCEMFIS
Science Center for Marine Fisheries

Gilsinan et al. 2024



- To support 1M market-size bushels:
  - 374M – 2.1B surfclam at hatchery stage
  - 4 – 18 hatcheries, $4M - $15M
  - Average costs of ~$0.01/clam
- Labor was the largest cost
- Analysis did not consider: land acquisition, permitting, hatchery failure, planting & harvest

Current project:
Hatchery and nursery siting to support Atlantic surfclam stock enhancement

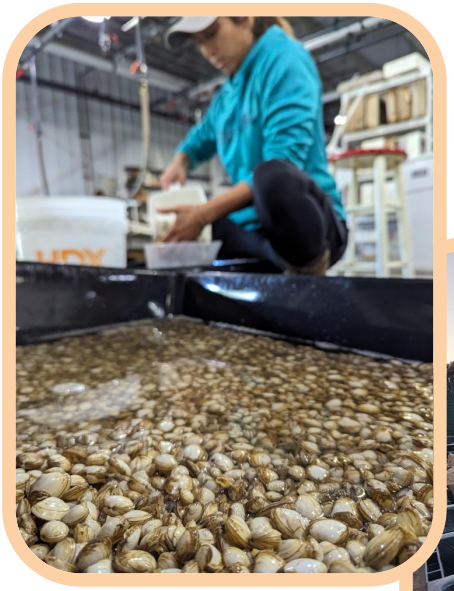
- Assess existing hatchery capacity
- Evaluate potential sites for new hatchery development
- Estimate additional costs & production risks
- Explore implications for fishery management

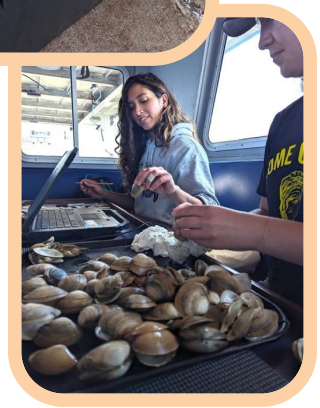
Preliminary findings

- Existing hatchery capacity varied across states
  - 10 (VA) to 0-1 (NH, DE)
  - NY: 3 private, 5 public; NJ: 5 private, 2 public/research
  - Oysters, hard clams, bay scallops most common
  - Interest in new species generally (diversification)
- New hatchery challenges: permitting (water quality), availability of space, public acceptance, workforce
- Hatchery failure is potentially high (~33%), increasing cost estimates

Seed Survival & Growth

Experiments underway evaluating response of seed clams to ocean environmental stressors, seed growth and survival under various planting densities and sizes, and vulnerability to predators.





Initial results show

17 – 41 % Shell Length

78 – 187 % Biomass

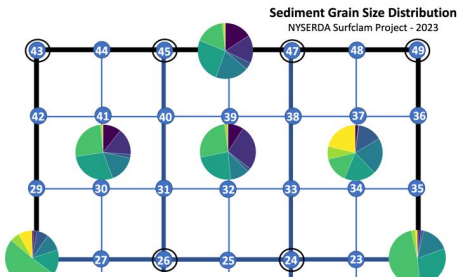
over 8 months.

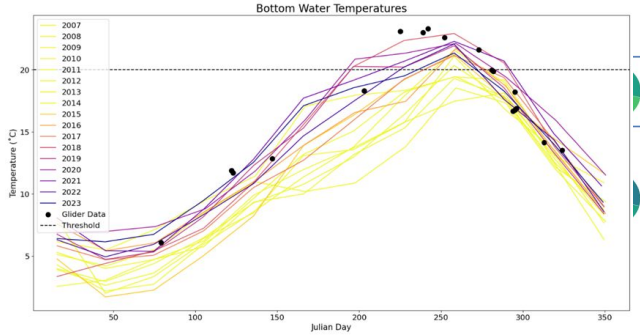
More information

Video:
Seed Clams

NEW YORK STATE

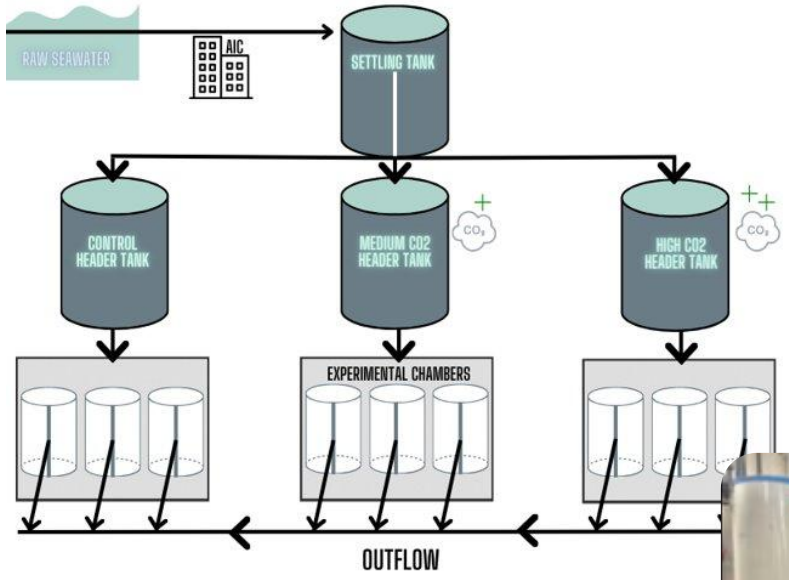
NYSERDA

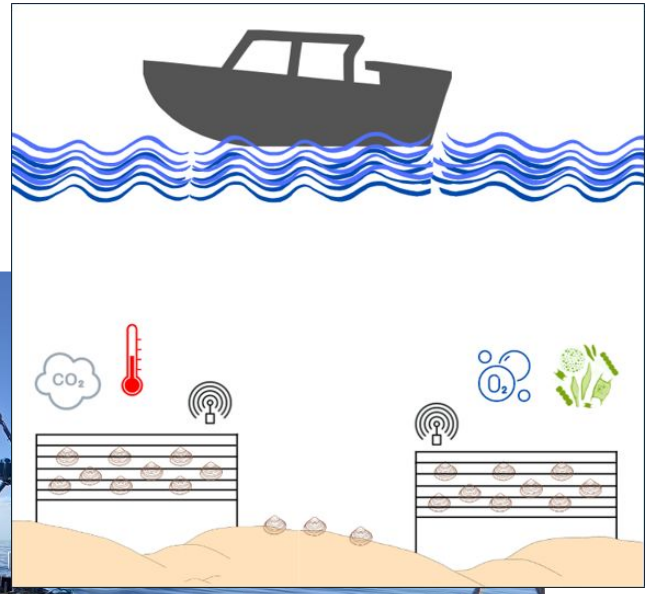


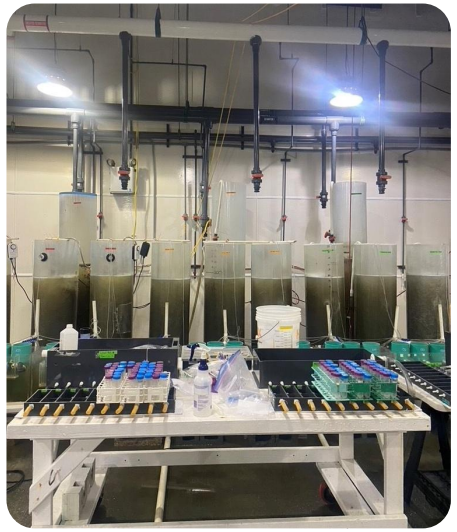


Offshore aquaculture potential for the Atlantic surfclam

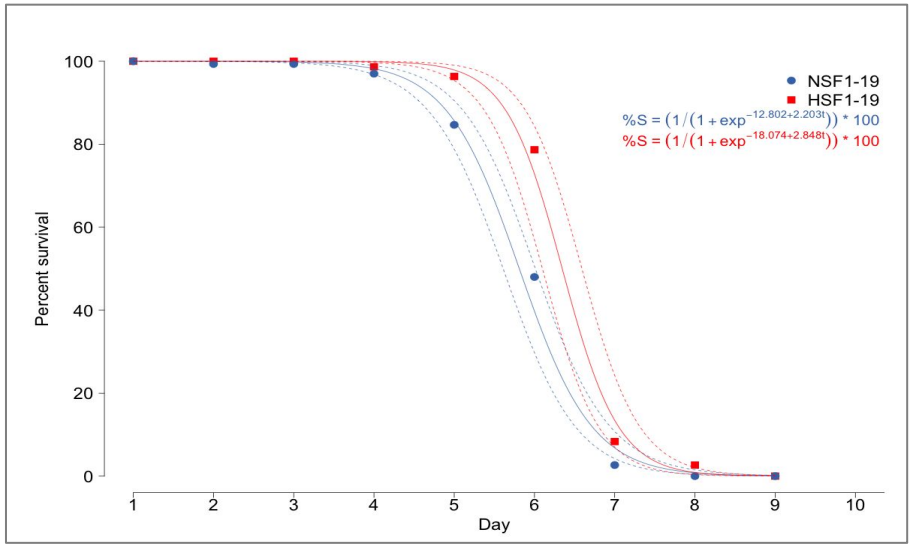
in situ observations and multi-stressor laboratory experiments







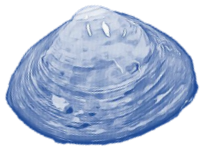
Can we Selectively Breed Atlantic surfclams (*Spisula solidissima*) for heat tolerance?



Heat-Selected-17 (HS)

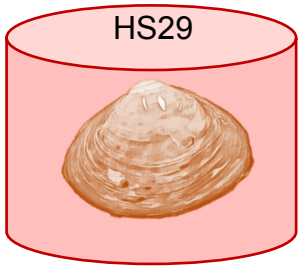
4 months

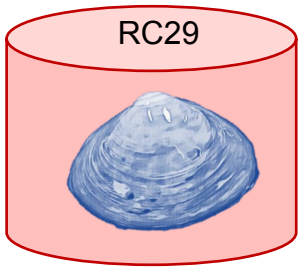
in favorable conditions



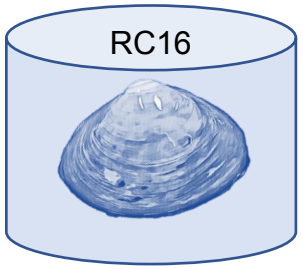
Non-Selected-17 = Random Control (RC)

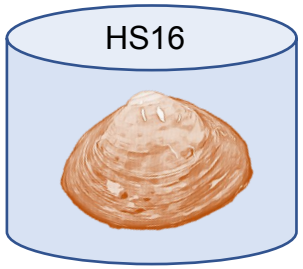
29˚C for 6 hours (3 replicates, 3 clams/replicate)





Transcriptome experiment





16˚C for 6 hours (3 replicates, 3 clams/replicate)

Sea Grant
NJ Sea Grant Consortium

NORTHEAST SARE
Sustainable Agriculture Research & Education

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

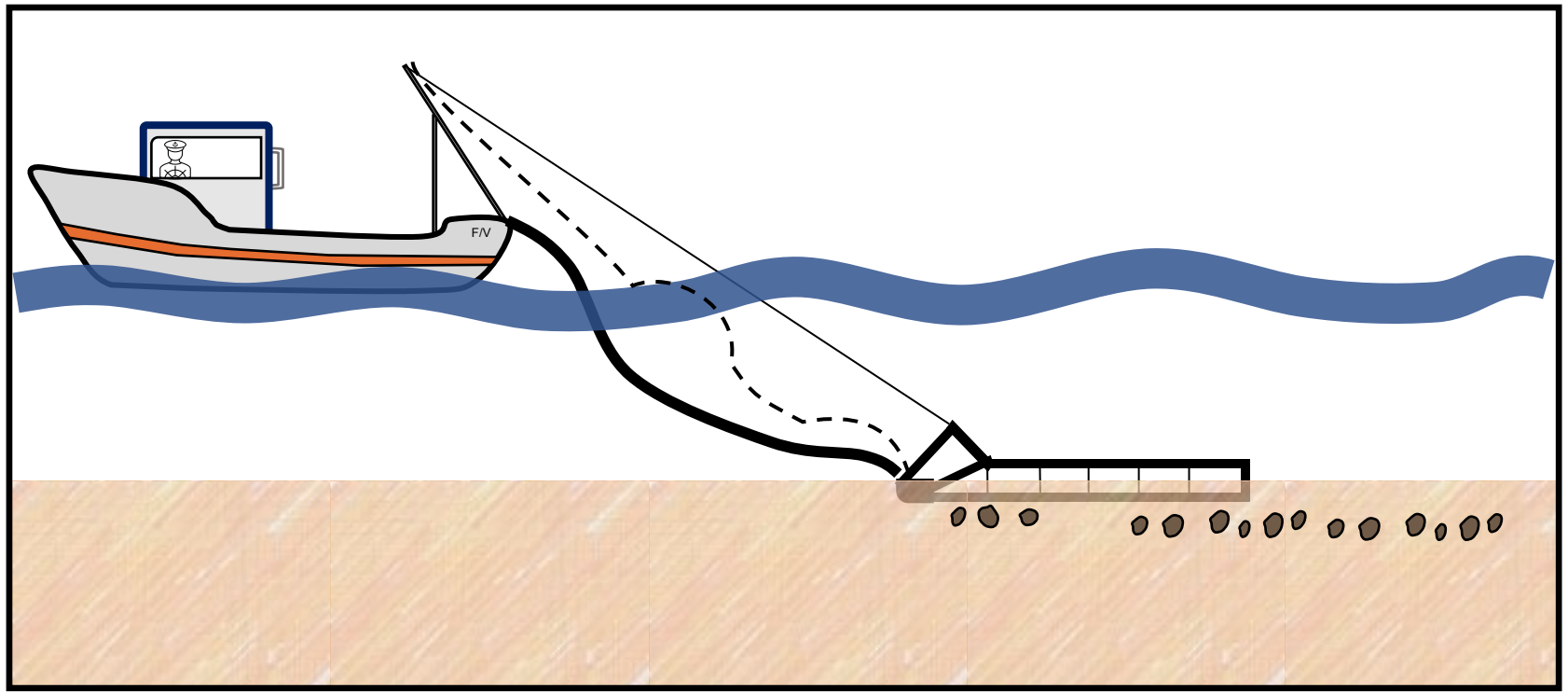
2025 Experiments:

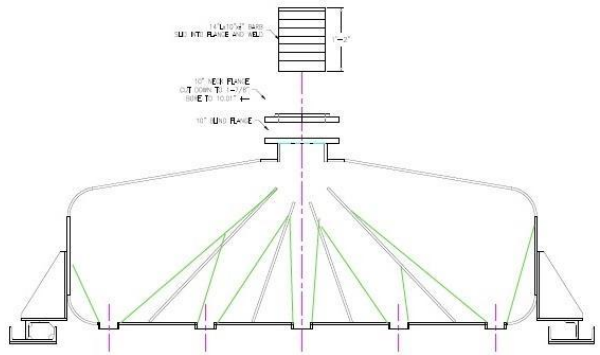
- Field experiments (ocean) to test how survival and growth of seed surfclams varies with density
- Lab experiments to test the predation rates and size preferences of key predators on juvenile surfclams

New Jersey Offshore Wind
Research & Monitoring Initiative

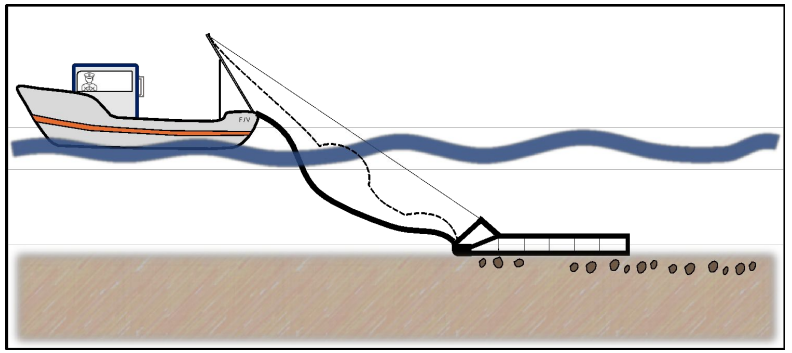
Design of a Seeding Tool

- Architectural design complete



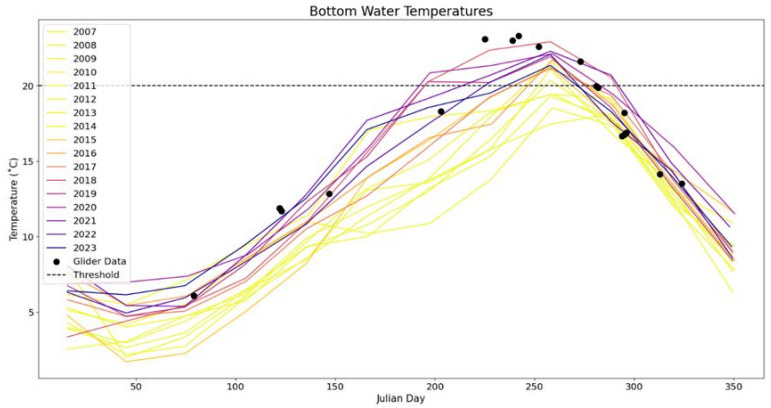


On the Horizon



- Optimize the seeding tool
  - Several experiments, at scale, over 3 years
- Use AI and Machine Learning to identify enhancement locations
  - habitat suitability identified from
    - ecological and fisheries datasets,
    - co-existent oceanographic/atmospheric data and models,
    - proprietary commercial fishery spatio-temporal biological data

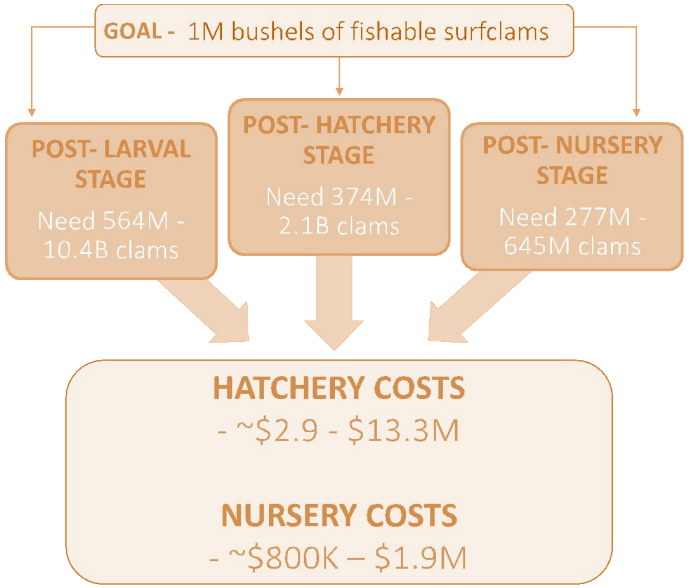
ATLANTIC SHORES
offshore wind



Ahmed Aziz Ezzat
Rutgers Engineering

Seed Production

A desktop study demonstrated this may be feasibly supported by hatcheries.



Seed Survival & Growth

Experiments underway evaluating response of seed clams to ocean environmental stressors, seed growth and survival under various planting densities and sizes, and vulnerability to predators.

More information

Paper:
Seed Production Scale

Video:
Seed Clams

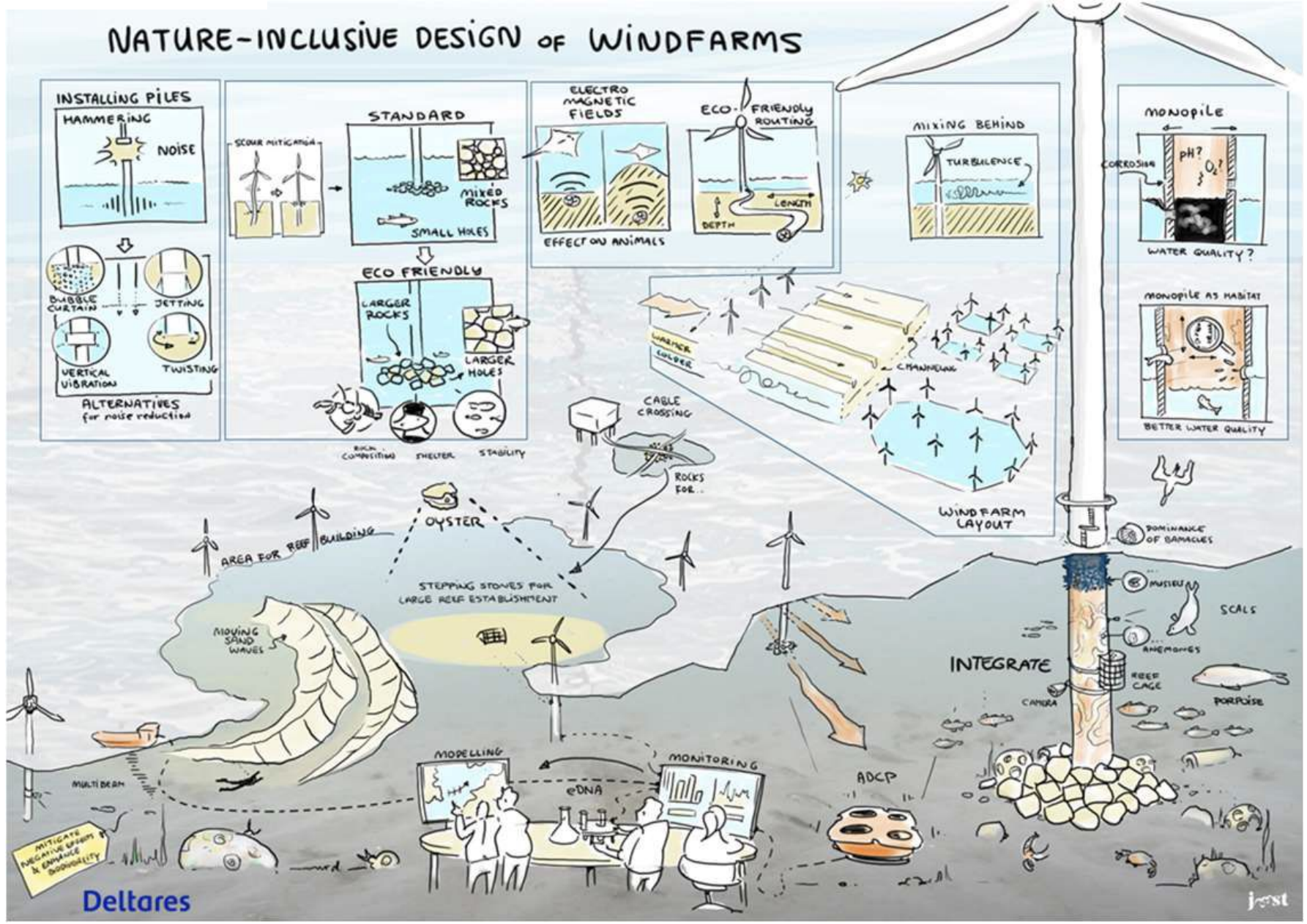
Seeding Strategies

Design and optimization of a custom seeding machine is underway. Machine learning planned to identify locations for enhancement.

VIMS | William & Mary
Virginia Institute of Marine Science

@MunroeLab

Many Thanks to the Various Funders, Collaborator, Partners.


NATURE-INCLUSIVE DESIGN OF WINDFARMS
INSTALLING PILES
HAMMERING
NOISE
BUBBLE CURTAIN
JETTING
VERTICAL VIBRATION
TWISTING
ALTERNATIVES for noise reduction
SCOUR MITIGATION
STANDARD
MIXED ROCKS
SMALL HOLES
ECO FRIENDLY
LARGER ROCKS
LARGER HOLES
ROCK COMPOSITION
SHELTER
STABILITY
ELECTRO MAGNETIC FIELDS
EFFECT ON ANIMALS
ECO-FRIENDLY ROUTING
DEPTH
LENGTH
MIXING BEHIND
TURBULENCE
MONOPILE
CORROSION
pH?
O_2?
WATER QUALITY?
MONOPILE AS HABITAT
BETTER WATER QUALITY
WARMER
COLDER
CHANNELING
WINDFARM LAYOUT
CABLE CROSSING
ROCKS FOR..
OYSTER
AREA FOR REEF BUILDING
STEPPING STONES FOR LARGE REEF ESTABLISHMENT
MOVING SAND WAVES
DOMINANCE OF BARNACLES
MUSSELS
SEALS
ANEMONES
INTEGRATE
REEF CAGE
CAMERA
PORPOISE
MODELLING
MONITORING
eDNA
ADCP
MULTI BEAM
MITIGATE NEGATIVE EFFECTS & ENHANCE BIODIVERSITY
Deltares
jpost

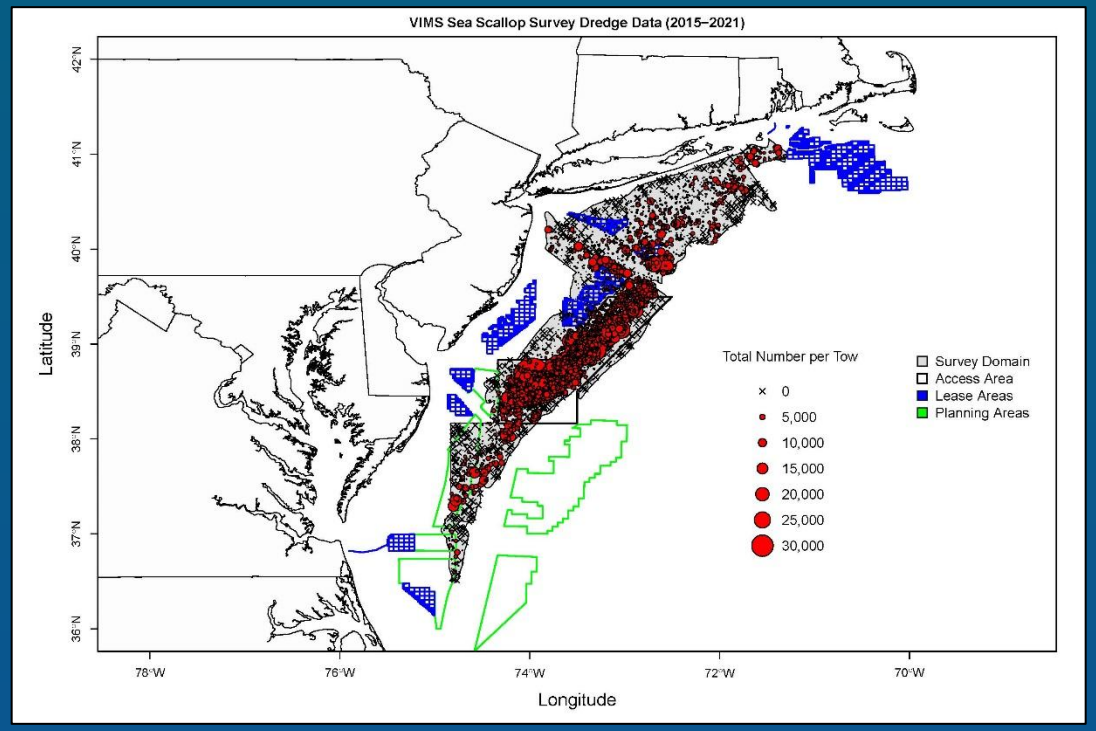
Workshop on the State of Knowledge Related to Scallop Enhancement

ROSA Advisory Council
December 18, 2024

VIMS | William & Mary
Virginia Institute of Marine Science

Research Set Aside
Investing in our fisheries since 1999

The sea scallop resource: A changing footprint



- The footprint of the resource is changing.
  - Warming ocean
  - Changing oceanography
  - Disease/parasites
  - Competing spatial uses
- In aggregate, one potential outlook points to lower resource levels and less access to areas available to the fishery.
- What to do? Can we do more with less?

Can we do more with less?

Global experience

- Many countries have had experience with techniques that represent a spectrum of approaches grow their scallop resources
  - Japan, France, Canada, China, Chile, New Zealand.
- Can any of these approaches be used in the U.S. to stabilize and enhance our resource?

Workshop on the State of Knowledge Related to Scallop Enhancement
Workshop Objective

Objective:

To convene a workshop with sea scallop stakeholders, scallop enhancement experts and decision makers to synthesize the state of knowledge as it relates to scallop enhancement and explore how scallop enhancement relates to the U.S. East Coast sea scallop resource.

Workshop on the State of Knowledge Related to Scallop Enhancement
Workshop Structure

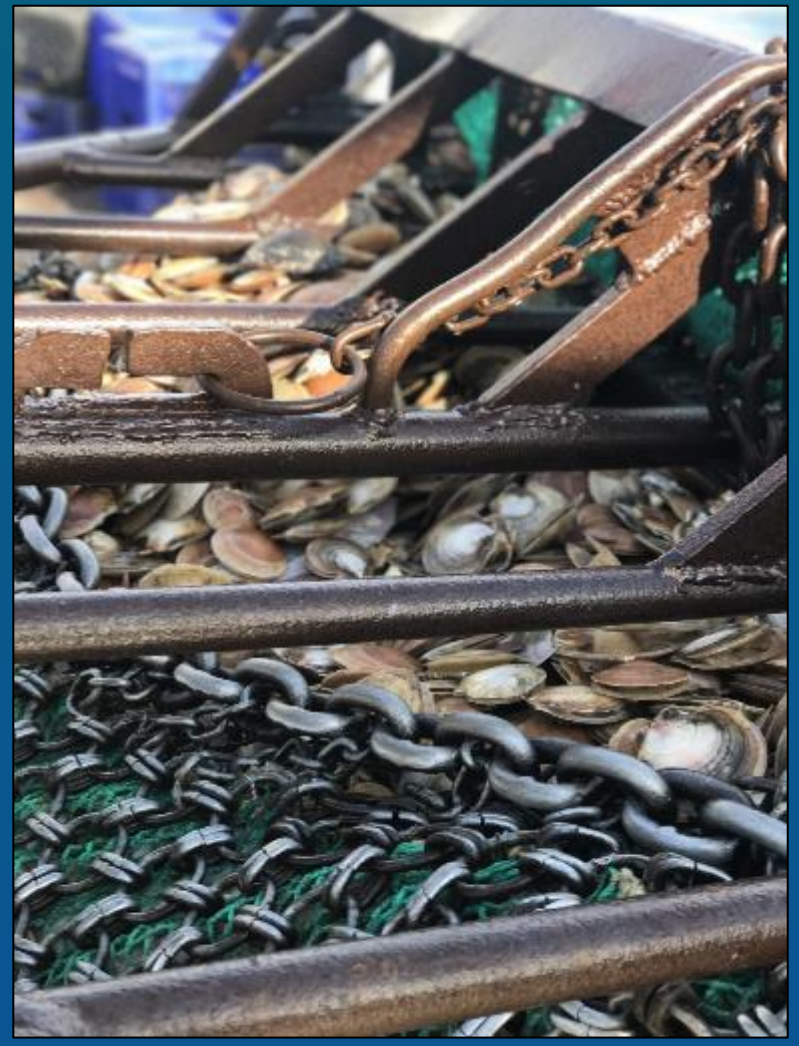
- Agenda Development
  - Centered around 4 focal areas
    - Seed Production
    - Planting and Transplanting
    - Ecological Considerations
    - Regulatory and Management Regimes
  - Topic experts from across the globe provided context, perspective and their experience on the varied aspects of scallop resource enhancement.
  - This information formed the basis for an interactive discussion around each theme.

Workshop on the State of Knowledge Related to Scallop Enhancement Outcomes

- What do we know, what do we not know and what do we need to know to evaluate the viability of resource enhancement for *Placopecten magellanicus* in the U.S.
- <u>Deliverables:</u>
  - A *conference proceedings* document summarizing the workshop.
    - A synthesis of information from the workshop for the sea scallop industry, policy makers (NEFMC) and NOAA.
  - A *whitepaper* articulating the strengths, weaknesses, opportunities, and threats of scallop enhancement for the U.S. federal fishery for *Placopecten magellanicus*.
    - Identification of priority needs (research, policy) to support the concept moving forward.

Concluding thoughts

- Sea scallops are facing a myriad of environmental and anthropogenic stressors that may reduce the footprint of the resource in U.S. waters.
- Acknowledging the existing expertise and long-running efforts with sea scallop culture and enhancement in the U.S., we sought to leverage that experience and engage with domestic and international colleagues to build out our understanding of the state of knowledge of enhancement.
- Ultimately, an output of this effort would be to produce an informed roadmap to guide future efforts in the area of scallop enhancement for the U.S. resource/fishery.



ROSA
Responsible Offshore Science Alliance

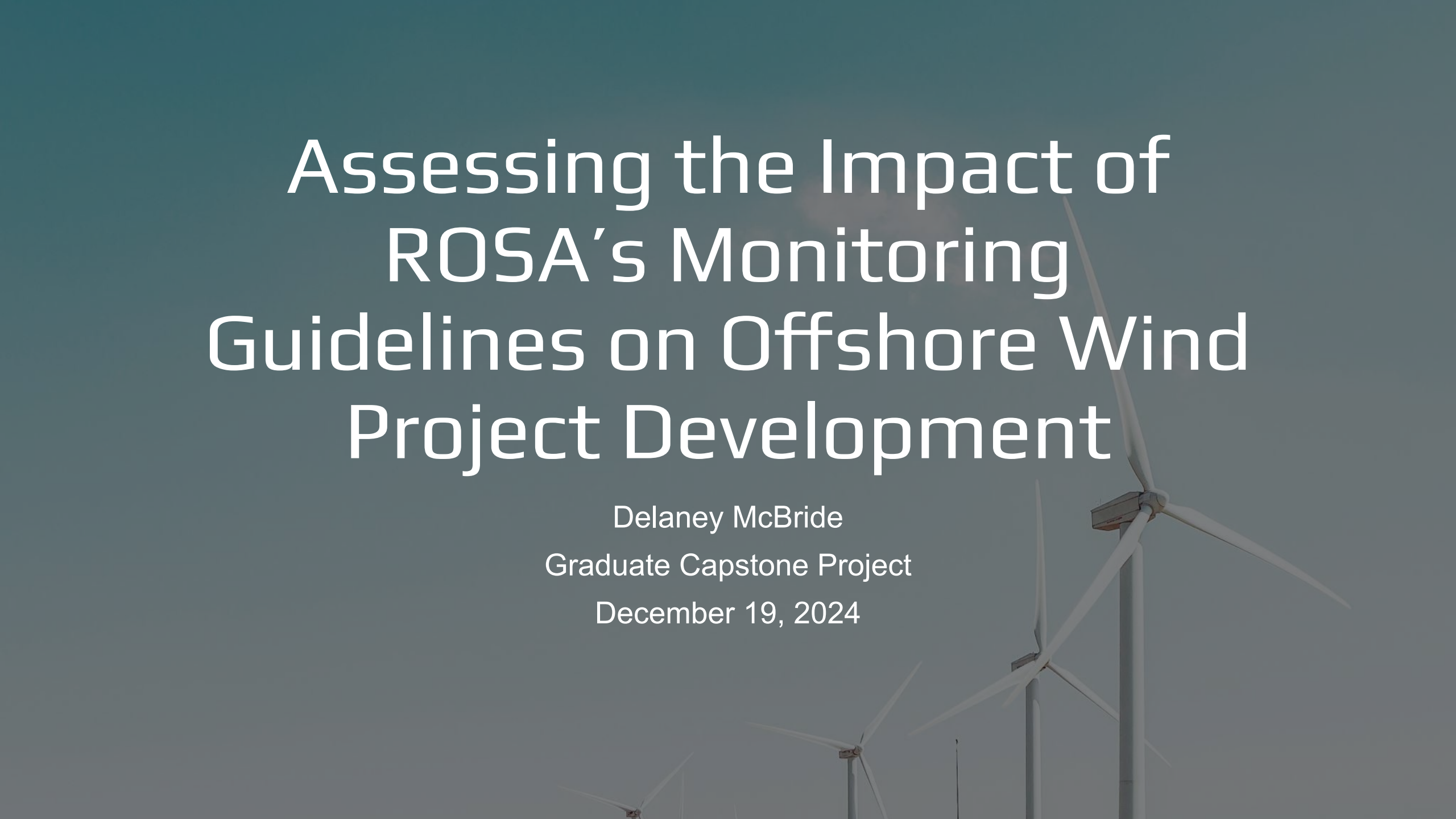
10 minute break - return 3:00

Assessing the Impact of ROSA's Monitoring Guidelines on Offshore Wind Project Development

Delaney McBride

Graduate Capstone Project

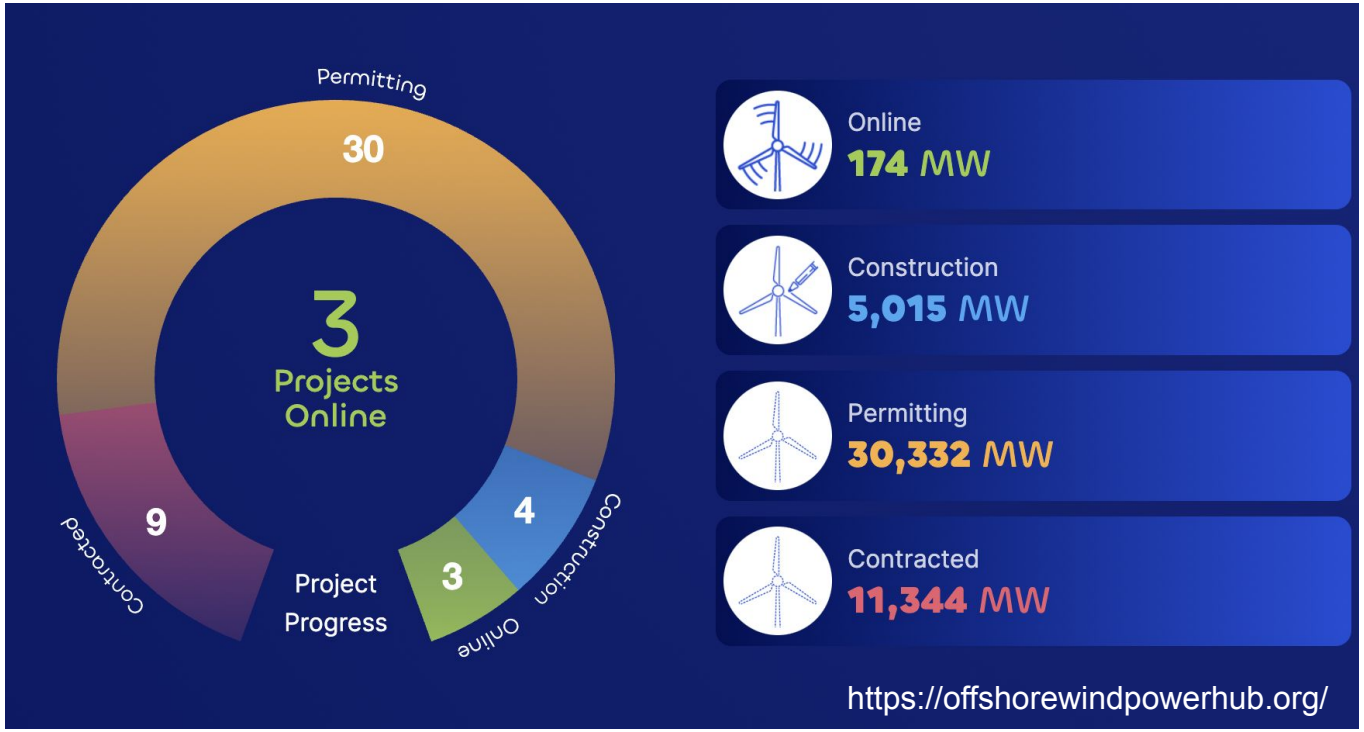
December 19, 2024



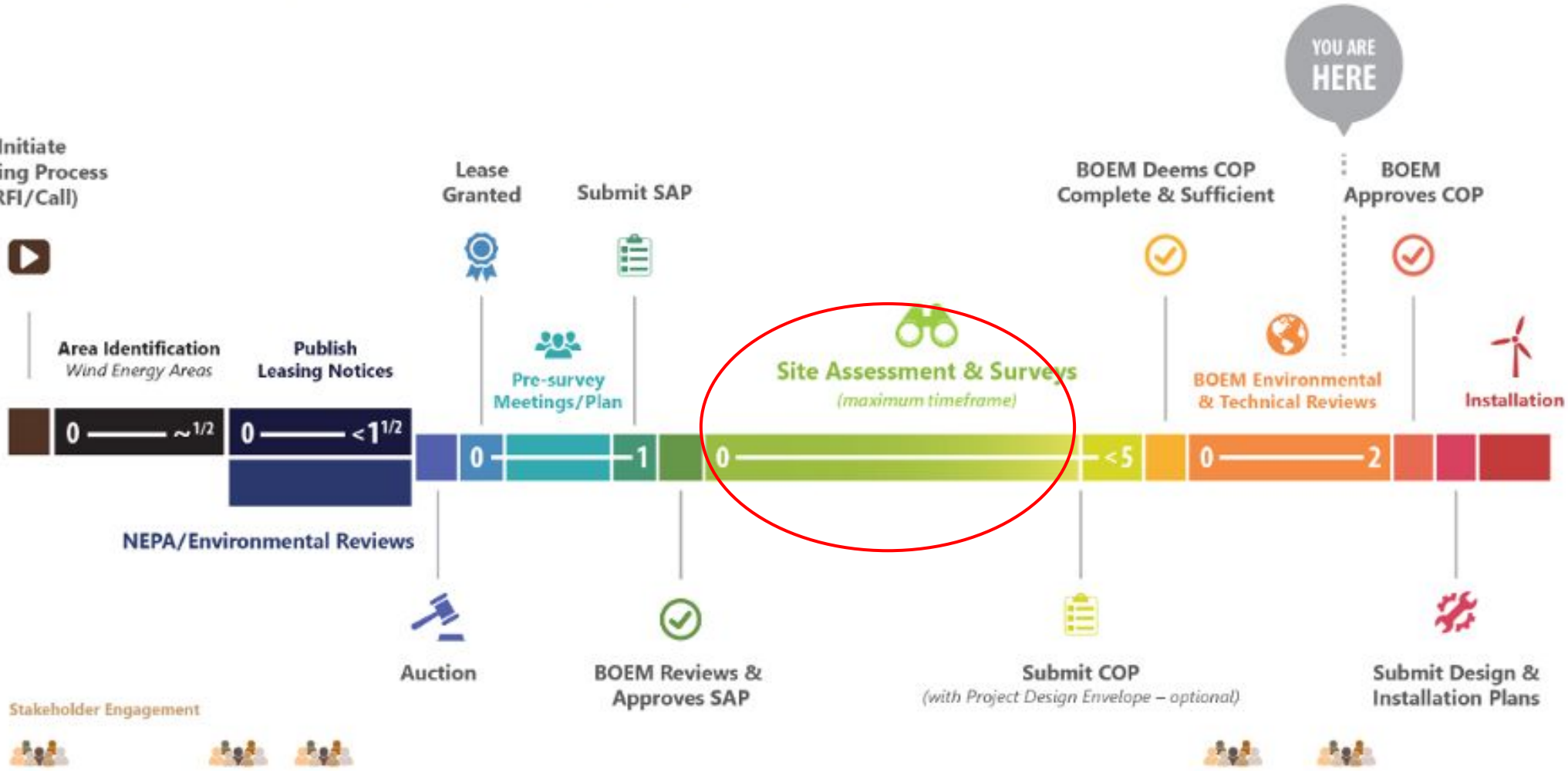
Offshore Wind Development

The Biden administration has set a goal of deploying 30 GW of offshore renewable energy by 2030.

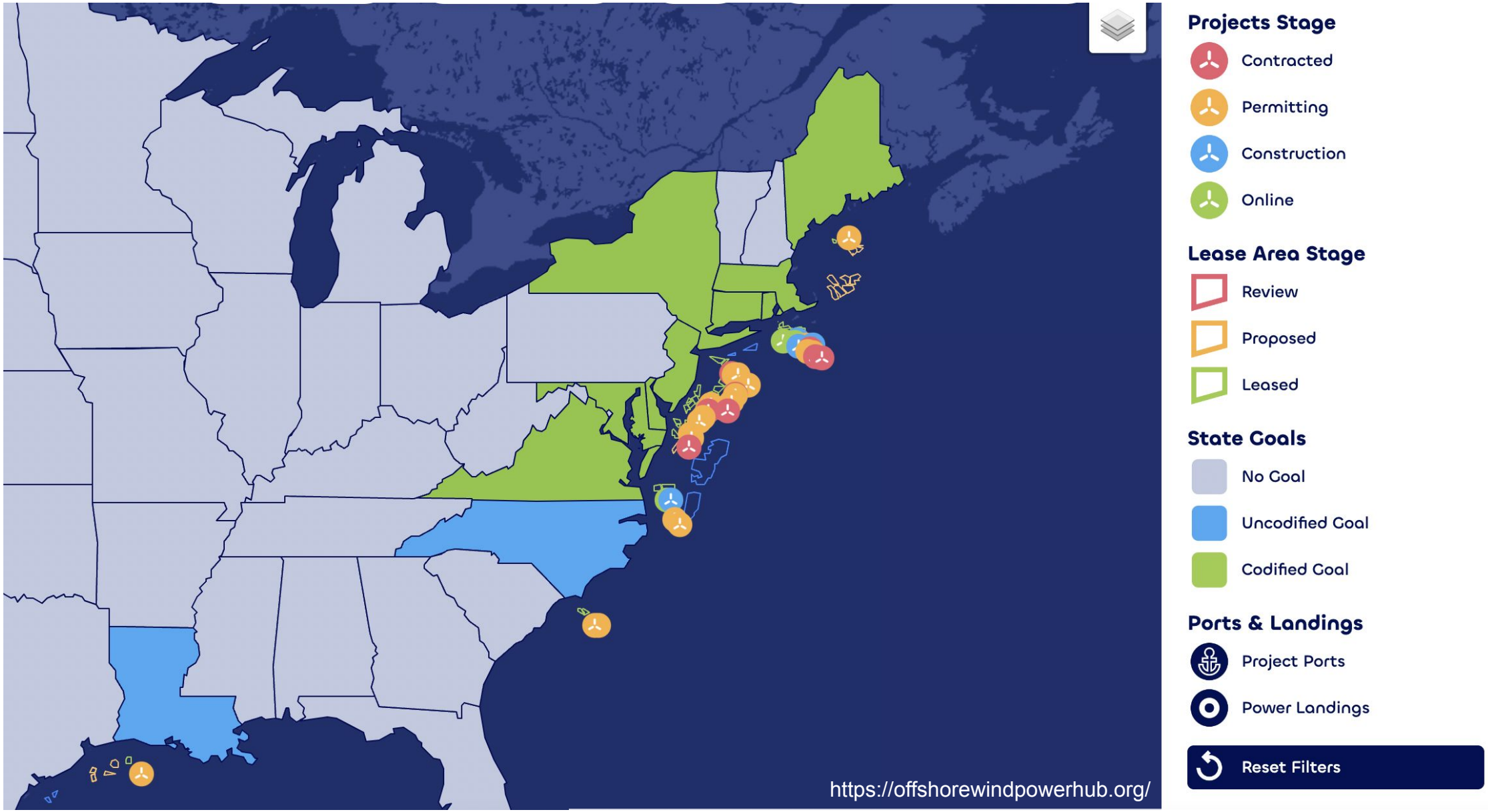
Ten commercial-scale offshore wind projects have been approved, totaling 15 GW of renewable energy once operational.



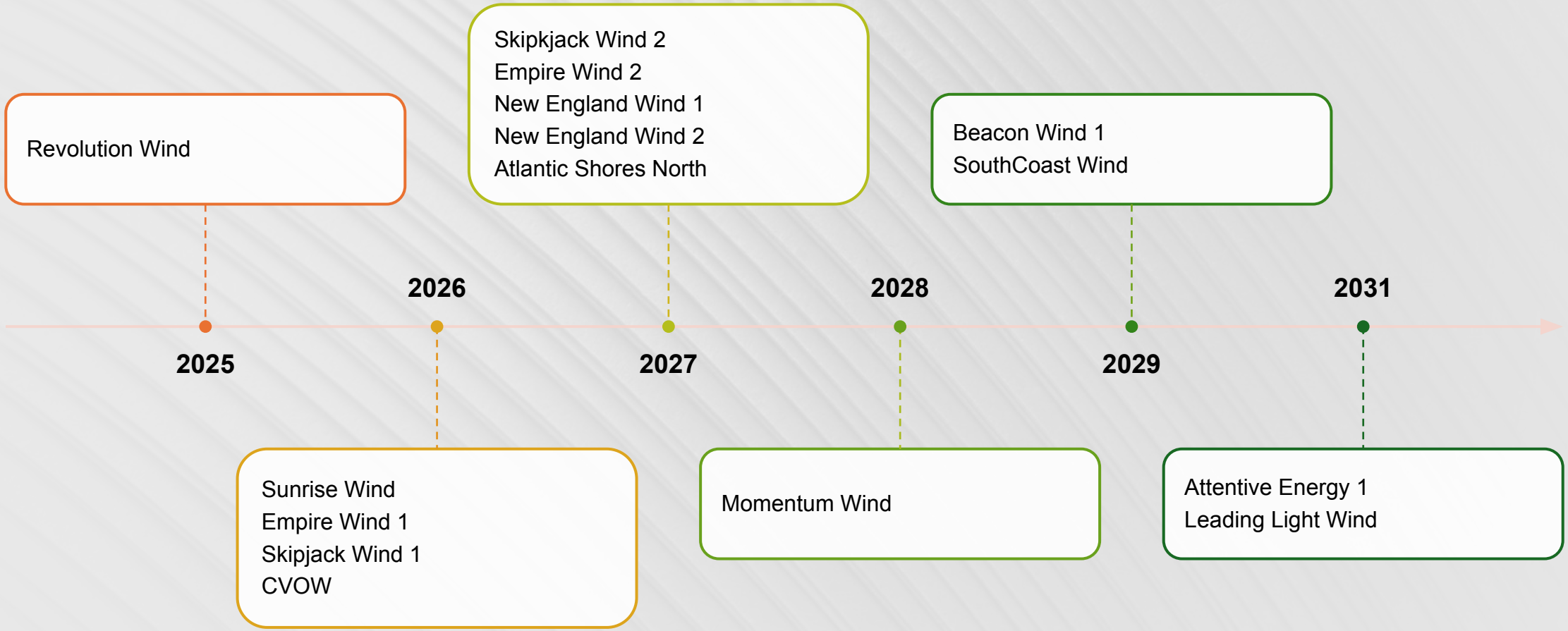
The Renewable Energy Process: Leasing to Operations



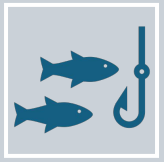
Current offshore wind development



Project timeline



Offshore wind and fisheries



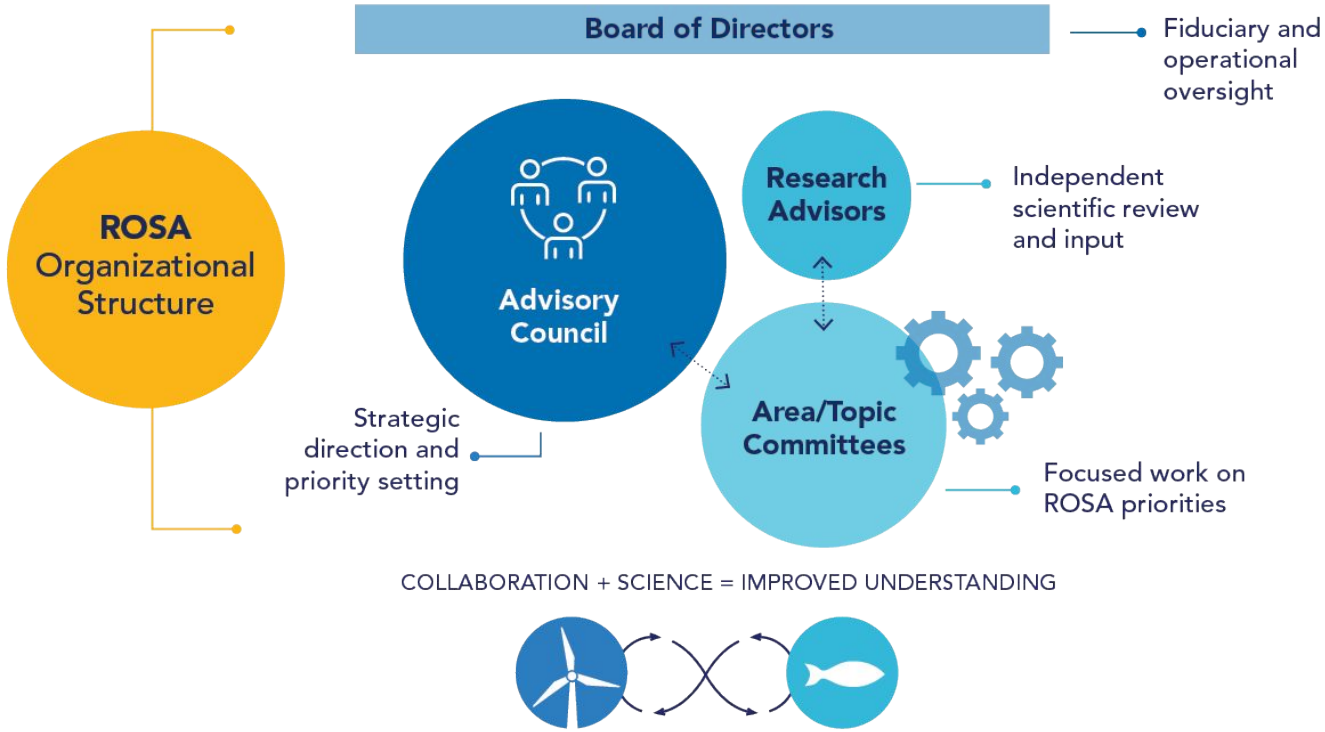
The impact on regional fisheries is still a topic of research and there has been continued engagement with the fishing industry. Despite outreach and involvement, conflicts still arise between the fishing industry and the offshore wind industry.

A need for neutral, science-based communication between fisheries and offshore wind was identified. Given the requirements for continuous research and monitoring on fisheries, offshore wind development presents an opportunity for cooperative, regional monitoring that can inform policy makers and marine managers.

Responsible Offshore Science Alliance

The Responsible Offshore Science Alliance (ROSA) is a nonprofit organization that advances research, monitoring, and methods on the effects of offshore wind energy development on fisheries across US federal and state waters.

ROSA serves as an objective resource for all sectors and facilitate the coordination of regional scientific research to collaboratively and efficiently



Monitoring Guidelines

ROSA published a framework in 2021 that includes essential elements to incorporate into monitoring plans. This framework includes ‘good science’ best practices and recommendations for fisheries biological monitoring studies.

The second edition of this framework is currently in development and is expanding to include socioeconomic monitoring studies and benthic habitat monitoring.

Problem statement

As ROSA is a **nonregulatory non-profit**, the organization can provide guidance but cannot enforce their recommendations. ROSA is increasingly tasked to provide guidance in the fisheries and offshore wind space and consistently works to ensure that they are utilizing the best available science and methods in their recommendations. The Guideline's scope of use has yet to be determined since COPs have been published post-2021.

Thus, an assessment of currently published COPs and their inclusion (or exclusion) of ROSA's guidance for fisheries monitoring and research methods is needed. This assessment will inform ROSA of their impact in COPs and will identify any gaps in their current recommendations.

Literature review

Monitoring efforts are not producing ecosystem level data. As the coastal environment continues to be developed, it is important to approach monitoring strategically and **reduce 'data-rich, information-poor'** research efforts and to instead focus on producing regionally-relevant data that can inform ecosystem management and regulatory efforts (Wilding et al., 2017).

A recently published review article found that 86% of possible offshore wind farm effects on ecosystem services is unknown or not well understood in the peer-reviewed literature (Watson et al., 2024).

Research questions

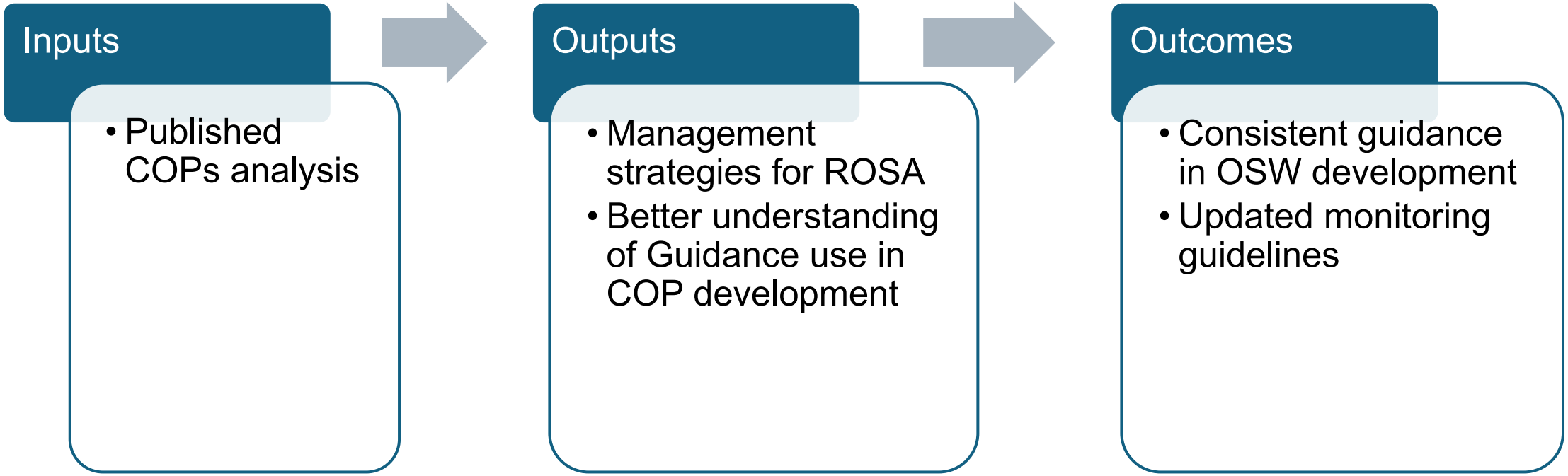
How are developers and consultants utilizing (or not utilizing) ROSA's framework in their COPs?

What aspects of the guidelines are most relevant to developers?

What management strategies can ROSA adopt to better engage with the fisheries and offshore wind community to improve future guidelines?

Research design

The influence of monitoring and mitigation guidelines in OSW project development



Data description & methods

I analyzed nine COPs and coded the references to ROSA using a SLR approach to determine how often ROSA is included and in what capacity they are included in COPs.

COP sections of interest:

1. Project description
2. Fisheries communication and outreach plan
3. Essential fish habitat assessment
4. Fisheries mitigation and monitoring
5. Fisheries and benthic monitoring plan
6. Summary of agency and stakeholder engagement

Identified themes

- Collaboration
- Monitoring & Research Design Standardization
- Scientific Best Practices
- Stakeholder Engagement & Outreach
- Data Storage & Sharing Protocols

Results

Seven out of nine COPs referenced ROSA

Wind Project	Theme				
	Collaboration	Monitoring & Research Design Standardization	Scientific Best Practices	Stakeholder Engagement & Outreach	Data Storage & Sharing Protocols
Ocean Wind 1	x				
Atlantic Shores South	x	x		x	
Atlantic Shores North		x	x	x	x
Sunrise wind		x		x	x
Empire Wind	x	x			x
South Fork Wind				x	
CVOW-C				x	

Research questions answered

How are developers and consultants utilizing (or not utilizing) ROSA's framework in their COPs?

- Developers most consistently refer to ROSA as a fisheries stakeholder and collaborator. ROSA is also referenced extensively as developers discuss their commitment to standardizing research and monitoring

What aspects of the guidelines are most relevant to developers?

- Developers reference the guidelines when discussing trawling and survey techniques. Developers also mention the guidelines as a heavily-referenced framework that informed their monitoring design.

What management strategies can ROSA adopt to better engage with the fisheries and offshore wind community to improve future guidelines?

- Continued buy-in from developers and consultants in the revision process will ensure all parties are aware of current best practices.

Recommendations

Collaborate with state agencies and stakeholders in emerging projects in VA, NC

Leverage collaboration to develop a **stakeholder-centered approach** to research design with ecosystem – level data collection in monitoring plans

Develop **data storage** and **data sharing** protocols to foster communication across projects to enhance regional ecosystem knowledge

References

About the Responsible Offshore Science Alliance. ROSA. (2024, April 16). https://www.rosascience.org/about/

Allen, Michael C. & Campo, Matthew. (2020). Ecological Monitoring and Mitigation Policies and Practices at Offshore Wind Installations in the United States and Europe. Retrieved from https://doi.org/doi:10.7282/t3-wn1p-cz80

Gill, A. B., Degraer, S., Lipsky, A., Mavraki, N., Methratta, E., & Brabant, R. (2020). SETTING THE CONTEXT FOR OFFSHORE WIND DEVELOPMENT EFFECTS ON FISH AND FISHERIES. *Oceanography*, *33*(4), 118–127. https://www.jstor.org/stable/26965755

Kou, L., Li, Y., Zhang, F., Gong, X., Hu, Y., Yuan, Q., Ke, W. (2022). Review on Monitoring, Operation and Maintenance of Smart Offshore Wind Farms. *Sensors*, *22*, 2822. https://doi.org/10.3390/s22082822

Lindeboom, H., Degraer, S., Dannheim, J. *et al.* (2015). Offshore wind park monitoring programmes, lessons learned and recommendations for the future. *Hydrobiologia* 756, 169–180. https://doi.org/10.1007/s10750-015-2267-4

Perry, R. L., & Heyman, W. D. (2020). CONSIDERATIONS FOR OFFSHORE WIND ENERGY DEVELOPMENT EFFECTS ON FISH AND FISHERIES IN THE UNITED STATES: A Review of Existing Studies, New Efforts, and Opportunities for Innovation. *Oceanography*, *33*(4), 28–37. https://www.jstor.org/stable/26965747

Pol, M. V., & Ford, K. H. (2020). Offshore wind energy and the fishing industry in the Northeastern USA. *Modern Fisheries Engineering*, 115–124. https://doi.org/10.1201/9780429328039-12

Tham, N. (2024, March 22). *The latest headwinds and tailwinds for U.S. offshore wind*. Bipartisan Policy Center. https://bipartisanpolicy.org/blog/the-latest-headwinds-and-tailwinds-for-u-s-offshore-wind/

The United States Government. (2024, September 5). *Fact sheet: Biden-Harris Administration hits offshore wind milestone, continues to advance clean energy opportunities*. The White House. https://www.whitehouse.gov/briefing-room/statements-releases/2024/09/05/fact-sheet-biden-harris-administration-hits-offshore-wind-milestone-continues-to-advance-clean-energ

Thank you!
Questions?

Delaney McBride

Delaney.ann.mcbride@gmail.com

Action Items, Next Steps, and Other Business

- Other business
  - Mike appointed to National Academies of Science Standing Committee on Offshore Wind and Fisheries

- Upcoming ROSA Events
  - Cooperative Research Summit - Jan 28, Portland, ME
    - ROSA Booth
  - NEFMC Meeting - Jan 29, Portsmouth, NH
    - ROSA Hosting Research Symposium
  - FishFORWRD Update (Jan)
  - Data Governance Kickoff Meeting (Feb)

ROSA

ROSA
Responsible Offshore Science Alliance

Happy Holidays!

ROSA Advisory Council
December 19, 2024