

# CZM, MARCO, ROSA and the RWSC

August 21, 2023



Laura McKay

VA CZM Program Manager, Retired



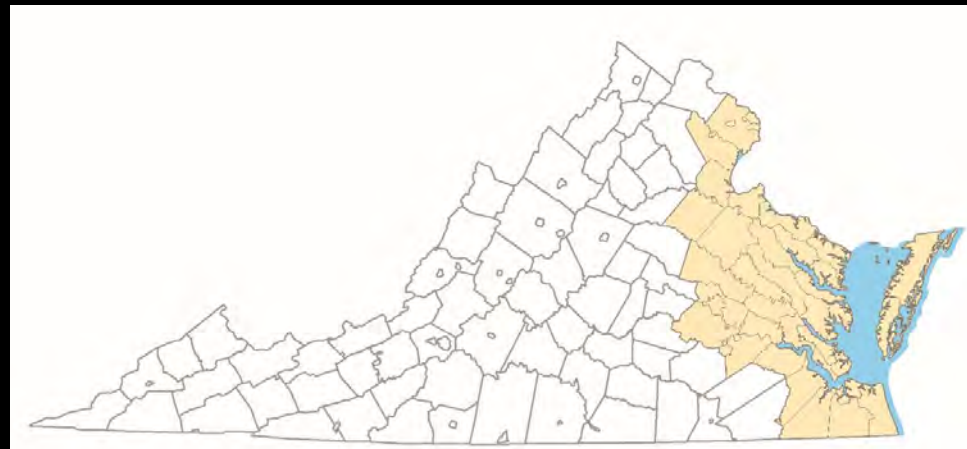
**Virginia Coastal Zone**  
MANAGEMENT PROGRAM



# What is the Virginia Coastal Zone Management (CZM) Program?

- Network of state agencies and coastal localities
- Guided by the inter-agency Coastal Policy Team led by CZM NOAA-funded staff at DEQ
- All the coastal laws and policies incorporated into the program and approved by NOAA
- Funded 100% by NOAA with ~ \$3M per year in grant funds

<https://www.deq.virginia.gov/our-programs/coastal-zone-management>



A screenshot of the Virginia Department of Environmental Quality (DEQ) website. The top navigation bar includes links for "About Us", "Jobs", "Contact Us", "Newsroom", "Search", and "Get Involved". The main menu features "Permits &amp; Regulations", "Air", "Water", "Land &amp; Waste", "Coasts", and "Get Involved". The "Coasts" link is highlighted. Below the navigation is a large photograph of a coastal landscape with green marsh grasses in the foreground, a sandy beach, and the blue ocean under a clear sky. On the left side of the page, there is a vertical list of menu items: "COASTAL ZONE MANAGEMENT", "ABOUT CZM", "COASTAL GEMS", "STRATEGIC PLANNING AND FUNDING", "COASTAL CONSERVATION", "COASTAL RESILIENCE", "COASTAL ECONOMY", "OCEAN MANAGEMENT", "MARINE DEBRIS", "HABITAT RESTORATION", "VIRGINIA NATIVE PLANT MARKETING", "HELP YOUR COAST", and "PUBLICATIONS &amp; RESOURCES". On the right side, the heading "Coasts" is followed by a paragraph: "Virginia's coast encompasses thousands of miles of beautiful shoreline and coastal habitats in all of the cities, counties and towns that touch on tidal waters. Our coast includes the waters of tidal rivers, the Chesapeake Bay, Back Bay and out to the 200 nautical mile boundary in the Atlantic Ocean." Below this is a smaller paragraph: "See the navigation at left for more information about the Commonwealth's resiliency, restoration and conservation efforts being led by the Virginia Coastal Zone Management Program."

# 10 Goals of the VA CZM Program



**1 -4 Coastal Resource Protection**



**5-7 Coastal Resource Sustainable Use**



**8 -10 Coastal Management Coordination**



# How Could VOWDA Be Involved?

- DOE reps attend twice/year VA CZM Coastal Policy Team meetings: Next meeting September 21 at DEQ
- DOE reps report to VOWDA any updates on Offshore Wind and Virginia Ocean Plan development



- VA CZM Manager, Ryan Green sits on Dep Sec'y Jenkins' state agencies Offshore Wind Coordination Team. He could attend public VOWDA meetings and provide updates on Virginia Ocean Plan development



Permits & Regulations

Air

Water

Land & Waste

Coasts

Get Involved



- + ABOUT CZM
- + STRATEGIC PLANNING AND FUNDING
- + COASTAL MAPPING
- + COASTAL CONSERVATION
- + COASTAL RESILIENCE
- + COASTAL PLANNING DISTRICTS
- OCEAN PLANNING

# Virginia Ocean Planning

Font Size: [Share & Bookmark](#) [Feedback](#) [Print](#)



## - Virginia Ocean Planning

Fishing & Offshore Wind

Marine Mammal & Sea Turtle Stranding

Mid-Atlantic Planning

## PUBLICATIONS & RESOURCES

HELP YOUR COAST

With new and expanding coastal and ocean uses emerging and Virginia's coastal population increasing (from 3.6 million in 1986 to about 5.5 million in 2019), the pressure is mounting to ensure that ocean resources are protected and there is space for both traditional and new uses with minimal conflicts.

Since 2011, through 5-year grants from NOAA (CZMA Section 309), the Virginia

## Resources

### Virginia Ocean Planning Fact Sheet



# What is MARCO?

A 5 State Governors' Agreement Created in 2009

# MARCO

MID-ATLANTIC REGIONAL  
COUNCIL ON THE OCEAN



DAVID A. PATERSON  
*New York*



JON S. CORZINE  
*New Jersey*



JACK MARKELL  
*Delaware*



MARTIN J. O'MALLEY  
*Maryland*



TIMOTHY M. KAINE  
*Virginia*

## Mid-Atlantic Governors' Agreement on Ocean Conservation

### A Rising Tide of New Challenges

The ocean waters of the Mid-Atlantic, stretching from New York to Virginia, provide a wealth of economic and

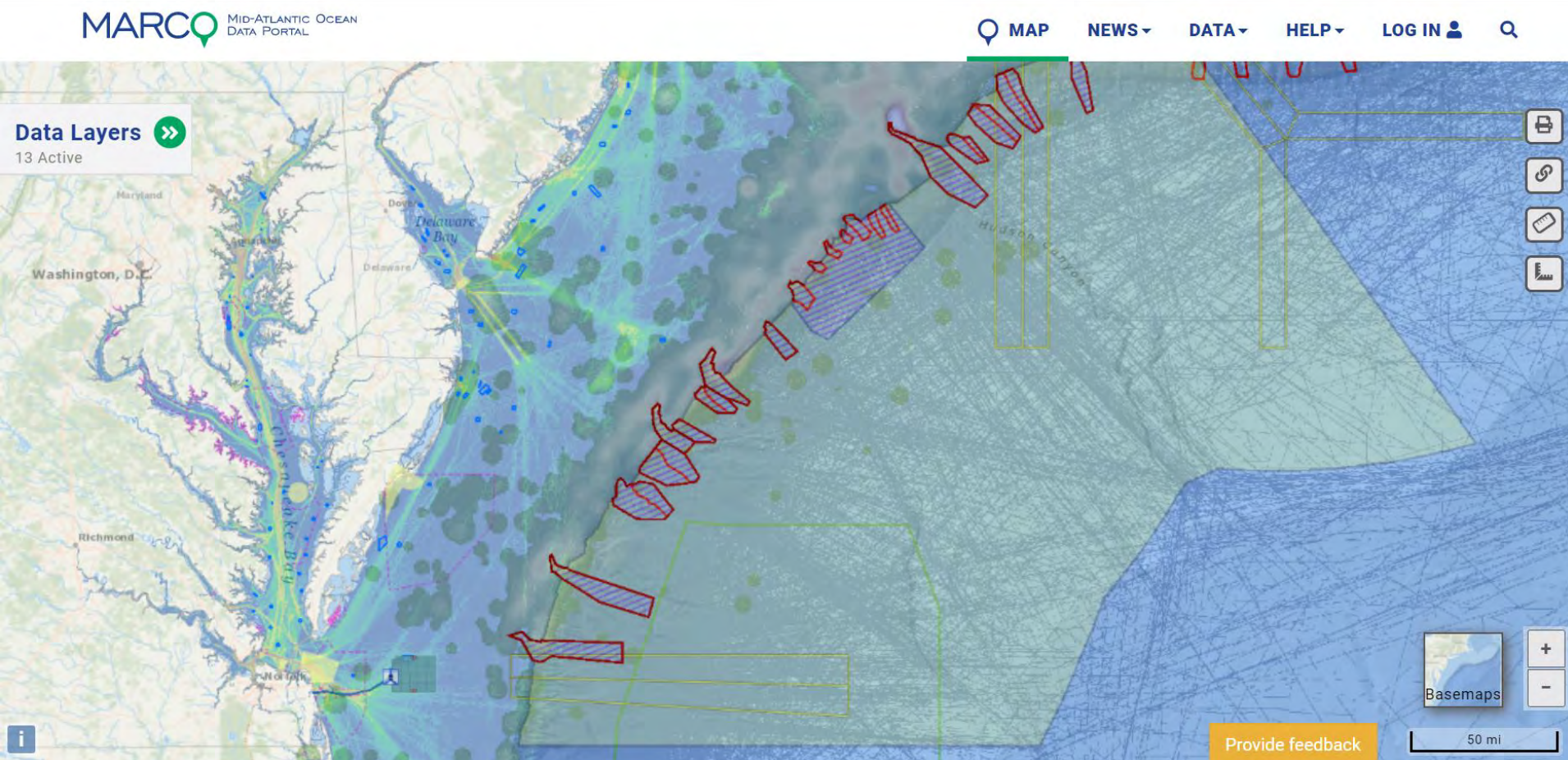
1. Sustainable development of renewable offshore energy
2. Protection of important ocean habitats
3. Promotion of improvements in ocean water quality
4. Preparation for impacts of climate change on ocean resources





# 2010 VACZM Created MARCO Ocean Data Portal

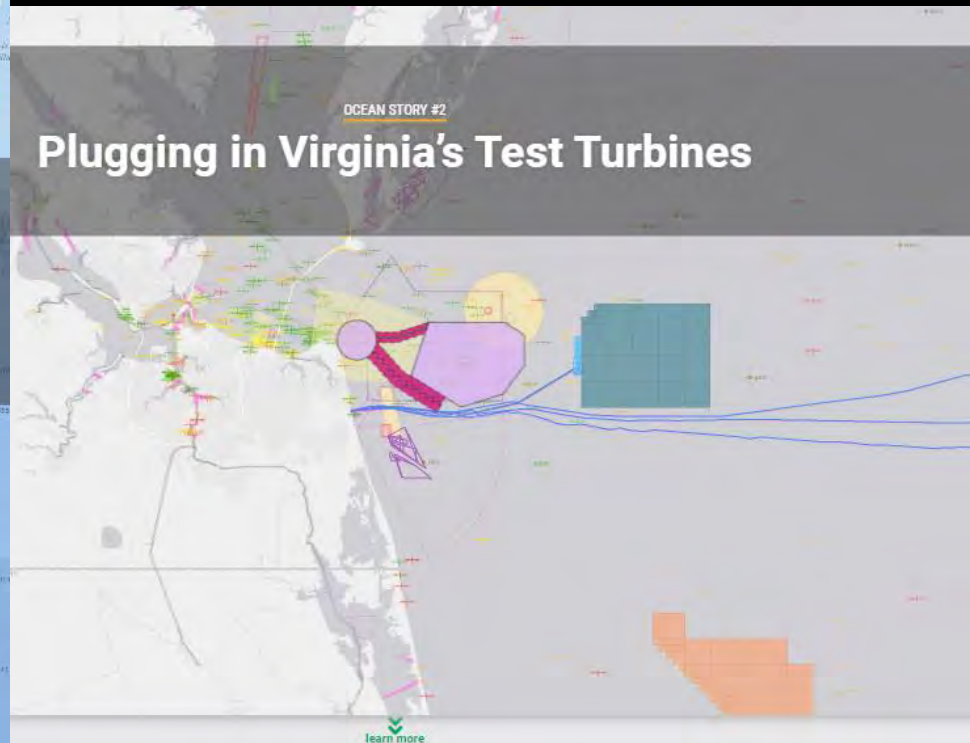
<https://portal.midatlanticocean.org/>



6,000+ maps in 12 themes: Administrative, Fishing, Fishing-Communities at Sea (by Port), Marine Life Library, Maritime, Oceanography, Recreation, Renewable Energy, Seafloor Habitat, Security, Socioeconomic, Water Quality.

# MARCO Ocean Data Portal Story Maps

- Transmission Series Part I: Siting Cables in Federal Waters
- Transmission Series Part II: The CVOW Cable Route



## Transmission Series Part II: The CVOW Cable Route

The following is the second in a two-part series focused on offshore wind energy transmission siting. [Part I](#) provided an introduction to the planning process involved with designing power cables in federal waters.



Welcome to the Mid-Atlantic Ocean Data Portal, an ocean planning resource center, and the **Marine Planner**, an interactive mapping tool.

ABOUT

About the Portal

Visit MARCO

NEWS

Blog

Ocean Stories

Calendar

DATA

Catalog

Resources and Data Links

Groups

HELP

How to Use the Portal

Webinars

Case Studies

Join

Ocean Stories



**11** Transmission Series Part I: Siting Cables in Federal...  
The following is the first in a two-part series focused on offshore wind energy transmission siting. Part II looks at the design and construction process for a cable connecting to the first two sites.



**3** Transmission Series Part II: The CVOW Cable Route  
The following is the second in a two-part series focused on offshore wind energy transmission siting. Part I provided an introduction to the planning process involved with...



**11** MARCO Improves Fishing Map Collection with...  
The commercial fishing industry has been woven into the Mid-Atlantic region's cultural fabric and economy for over 300 years. Today it generates a half-billion dollars in landings revenue.



**7** Group Aims to Make Field More Diverse, Provide...



**6** Charter Captain Tours Busy N.J. Waters with Classic...



**10** Shining a Light on Region's Deep-Sea Corals



**6** Submarine cables: Preserving the Mid-...  
Telecommunications play an integral role in our everyday lives. The speed and consistency that we are able to make phone calls and access information online is supported by a large network of...



**3** Tug and barge industry juggles traditional routes...  
Tugboats, towboats and barges are the worker bees of maritime transportation.



**4** Long-time fisherman keeps watch over Maryland's...  
In the nearly 35 years Captain Hawkins has been fishing off Maryland's coast, he's seen an increase in some fish populations as well as a decline in others.



**5** Recreational survey covers the coast



**4** Coast Guard marine traffic data a boon for ocean...



**4** Every map tells a story. We help you share yours.



**11** Offshore Energy Lease Areas in the Mid-Atlantic  
The importance of reducing greenhouse gas emissions, achieving energy independence, and relieving congested energy transmission routes has elevated renewable energy on U.S. public...



**5** Citizen Scientists Track Resurgence of Humpback...  
It's Black Friday, and while millions in the New York City area are out spending greenbacks, a group of about 50 is getting ready to search for humpbacks.



**10** A Day in the Life: The F/V Christian and Alexa  
Kenny and Art Ochse, owners of the fishing vessel Christian and Alexa, recently welcomed Ocean Stories aboard to observe a typical day at sea. Come along with our trip diary and learn how...



**3** For Lenape, Ancient Cultural History Lies



**5** Vessel Tracking Pioneer Recalls System's Post-9/11



**3** Survey Shows Where Boaters Go and How They

# Mid-Atlantic Ocean Planning

- VA joined the Mid-Atlantic Regional Planning Body in 2013. Mid-A Ocean Plan approved in 2016
- MARCO created MACO in 2017 after RPB was disbanded.
- MACO members include states, federal agencies, the Mid-Atlantic Fishery Management Council and federally recognized tribes. MACO's goal is to enhance the vitality of the region's ocean ecosystem and economy through increased communication and collaboration.
- MACO has an Offshore Wind Regional Collaboration work group. See <https://www.midatlanticocean.org/offshore-wind-regional-collaboration/>



MID-ATLANTIC  
COMMITTEE  
ON THE OCEAN





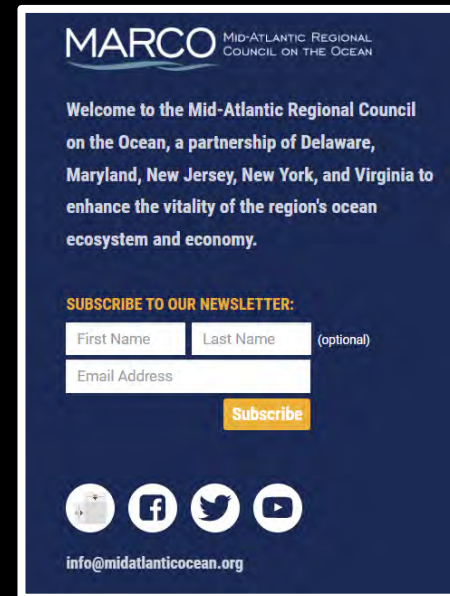
# How Could VOWDA Be Involved?

- VOWDA members could sign up to receive
  - MARCO Newsletters
  - MARCO Ocean Data Portal updates

Sign up at

[www.midatlanticocean.org](http://www.midatlanticocean.org)

- VOWDA members could request specific map layers be added to the portal
- VOWDA members could participate in MARCO's annual Ocean Forum each May



MARCO MID-ATLANTIC REGIONAL COUNCIL ON THE OCEAN

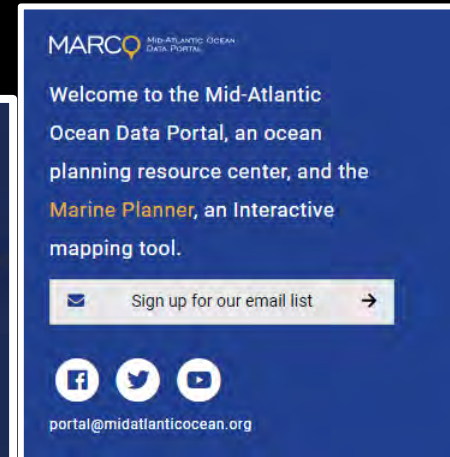
Welcome to the Mid-Atlantic Regional Council on the Ocean, a partnership of Delaware, Maryland, New Jersey, New York, and Virginia to enhance the vitality of the region's ocean ecosystem and economy.

SUBSCRIBE TO OUR NEWSLETTER:

First Name  Last Name  (optional)

Email Address

info@midatlanticocean.org



MARCO MID-ATLANTIC OCEAN DATA PORTAL

Welcome to the Mid-Atlantic Ocean Data Portal, an ocean planning resource center, and the **Marine Planner**, an interactive mapping tool.

→

[f](#) [t](#) [v](#)

portal@midatlanticocean.org



2023 Mid-Atlantic Ocean Forum

The fifth annual Mid-Atlantic Ocean Forum was held virtually and in person in New York City on May 17 and 18, 2023.

[View Slides & Videos from the Fifth Annual Mid-Atlantic Ocean Forum](#)

# What is ROSA?



**ROSA**  
Responsible Offshore  
Science Alliance

ROSA is a collaboration of fishermen, offshore wind energy developers, fisheries scientists, federal and state management experts and others to:

- Identify regional fisheries research & monitoring needs
- Coordinate existing research & monitoring
- Advance collaboration & cooperative research
- Administer fisheries research
- Improve access to scientific data



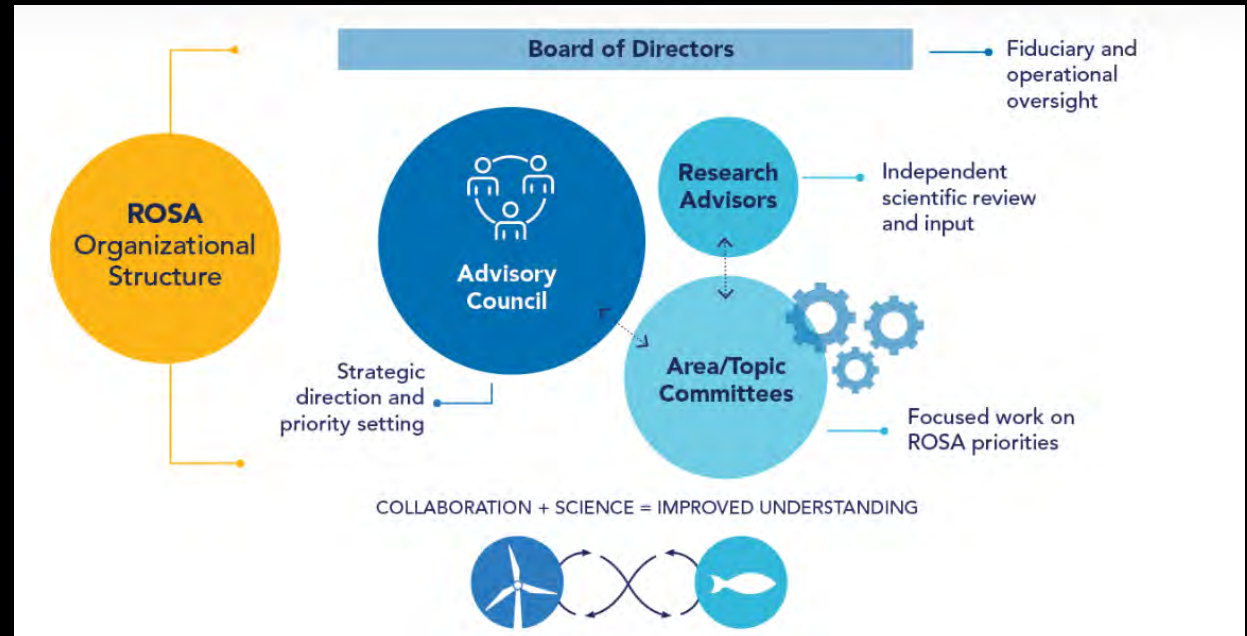


# What is ROSA?



**ROSA**  
Responsible Offshore  
Science Alliance

- Led by Executive Director, Renee Reilly and a Board of Directors



- ROSA Advisory Council provides strategic direction and defines key projects
- ROSA Research Advisors provide independent scientific input to the council and committees

# ROSA's Advisory Council

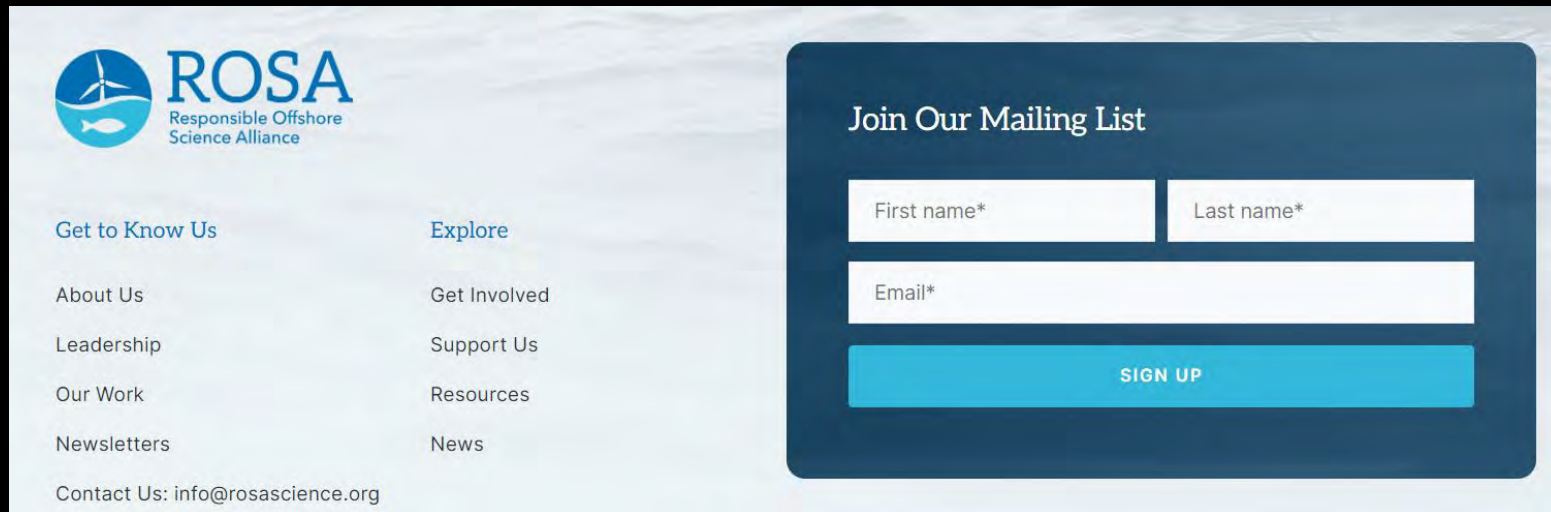


**ROSA**  
Responsible Offshore  
Science Alliance

- **7 Offshore Wind Developers:** Atlantic Shores, Community Offshore Wind, Equinor, Mayflower Wind, Orsted, TotalEnergies, and Vineyard Wind
- **16 Commercial Fishermen:** includes Capt Ruhle of Virginia
- **7 Recreational Fishermen:** includes David Tobey of VA Saltwater Sportfishing Association
- **6 Federal Reps,** Fisheries Management Councils and Fisheries Commission: includes James Bennett of BOEM
- **11 State Reps:** includes Rachael Peabody of VMRC and Laura McKay of VA CZM (needs to be replaced – could be by CZM or VOWDA)



# How Could VOWDA Be Involved?



The screenshot shows the ROSA (Responsible Offshore Science Alliance) website. On the left, there is a navigation menu under 'Get to Know Us' with links for 'About Us', 'Leadership', 'Our Work', 'Newsletters', and 'Contact Us: info@rosascience.org'. To the right of this menu is an 'Explore' section with links for 'Get Involved', 'Support Us', 'Resources', and 'News'. On the right side of the page, there is a dark blue box titled 'Join Our Mailing List' containing a form with three input fields: 'First name\*', 'Last name\*', and 'Email\*'. Below these fields is a bright blue button labeled 'SIGN UP'.



## Attend Advisory Council Meetings

Advisory council meetings are open forums for discussing priority matters related to ROSA's mission, as well as learning about research being undertaken by other organizations. Topics have included:

- Challenges to pre-construction fisheries surveys.
- How to achieve fair and constructive data sharing.
- How to improve compatibility of fishing gear surveys across wind leases.
- How to develop a regional research framework (that will help direct resources to the highest-priority projects).

Advisory council meetings are open to the public. See the [Advisory Council Priorities and Meeting page](#) for meeting agendas, presentations, and summaries.

# How Could VOWDA Be Involved?



## Participate in Research

ROSA is working to raise research funds (see our [Support Us page](#) for details) and create opportunities for people to engage in collaborative research.

In the meantime, the ROSA community is working together to lay the foundation for effective regional research by tackling the projects outlined in the above advisory council meetings section. Join us in working on these important initiatives!



## Support Us

ROSA depends on contributions from individuals, businesses, government, and other grant-funding entities to sustain its work. Your donation is critical to advancing regional science on offshore wind and fisheries. Visit our [Support Us](#) to make a contribution today.



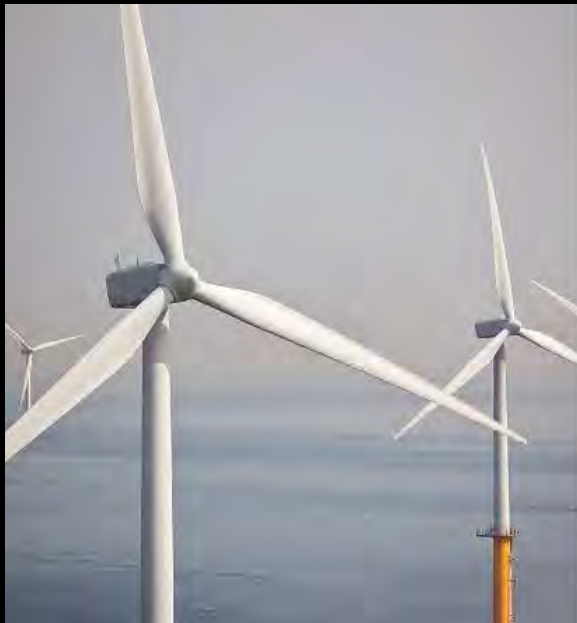
# How Could VOWDA Be Involved?



## Support ROSA by Contributing:

- An unrestricted gift that helps fund the organization's operations, enabling us to lead research and serve as a convener of scientists throughout the region.
- A gift to our research fund that allows us to administer research projects on topics that have been prioritized by the ROSA community.

If you would like to discuss the organization's funding needs and how you can best support ROSA's mission, please email [info@rosascience.org](mailto:info@rosascience.org).



## Seed Funding

ROSA was founded in 2019 by the Responsible Offshore Development Alliance (RODA) and several offshore wind developers, with initial funding from the following developers:

- Atlantic Shores Offshore Wind
- Equinor
- Mayflower Wind Energy
- Ørsted
- Vineyard Wind

We are grateful to these companies for their past and ongoing support. ROSA is currently funded by contributions from these offshore wind developers and a grant.

# Draft Pledge Letter



August 8, 2023

Will Fediw  
Chair  
Virginia Offshore Wind Development Authority

Dear Mr. Fediw,

I am writing to respectfully request a sponsor contribution for the Responsible Offshore Science Alliance (ROSA). After consultation with our Board of Directors, we are requesting that states engaged in ROSA consider contributing up to \$50,000 of unrestricted funds annually to help support our operating costs as a public sponsor. We are seeking support for a minimum of two (2) years, directed toward 2023 and 2024 operations.

ROSA is a 501(c)(3) 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 a trusted resource for all sectors and facilitate coordination of regional scientific research in an effort to increase efficiencies, deepen understanding, and facilitate regional collaboration.

Your contribution would support ROSA's ongoing work, including:

- Coordinating between researchers engaged in offshore wind fisheries research
- Promoting cooperative research to leverage the commercial and recreational fishing industries' knowledge and increase participation and trust across sectors
- Partnering with regional science organizations such as the Regional Wildlife Science Collaborative for Offshore Wind (RWSC) to create synergies in regional coordination
- Producing products to serve the offshore wind research community, such as
  - Guidance documents and recommendations, e.g., [ROSA Offshore Wind Project Monitoring Framework and Guidelines](#)
  - Regional databases (e.g., [Fish FORWARD](#))
- Continually updating those products (monitoring framework and guidance, databases of regional research and priorities, data collection standards, and ongoing research)
- Developing scientific workshops and symposia focused on offshore wind and fisheries, e.g., co-convening AFS symposia on Offshore Wind research ([including 2023](#))
- Communicating to stakeholders through [website](#), [newsletters](#), and [annual reviews](#), as well as participation at regional fisheries council and commission meetings
- Providing a general forum for regional coordination, through Advisory Council meetings and other fora

ROSA's mission is guided by a board of directors, comprised equally of offshore wind



developers and commercial fishing industry leaders, representing the organizations that founded the organization. Their role, like most nonprofit boards, is primarily to provide mission and fiduciary oversight.

The ROSA Advisory Council provides strategic guidance for the organization and defines key initiatives for staff and council committees. Advisory Council members include commercial and recreational fishermen, offshore wind developers, federal agencies, regional fishery management councils and commissions, and representatives from 11 states, including Virginia. Additionally, the Executive Committee of the Advisory Council has two (2) representatives from each sector and meets at least quarterly to discuss progress on tasks and committees, plan Advisory Council meetings, and provide overall guidance for the Advisory Council and staff. State agency leadership on the Executive Committee includes one representative from a New England state and one from a Mid-Atlantic state. Materials from ROSA Advisory Council meetings can be found on our website at: [rosascience.org/advisory-council](https://rosascience.org/advisory-council).

ROSA's operating funds thus far have been provided through seed funding from offshore wind developers that serve on its board of directors. However, as the organization continues to grow, more diversified funding sources are needed. As a 501(c)(3) public charity, one third (1/3) of our funding is required to come from public sources, which can include state and federal sponsors. With state partners' support, we will be able to continue and expand the important work that we do, with continuing guidance to ensure our work provides valuable resources to state agencies.

The following materials are enclosed to help summarize ROSA's recent efforts and financials for your review: ROSA FAQ page, 2022 Year in Review, June 2022 presentation to states, IRS 501(c)(3) determination letter, ROSA 990 tax filing for 2021 (2022 filing currently in progress), 2021 ROSA Audit (2022 audit currently in progress), ROSA estimated 2023 operating costs

Should you have any questions, please do not hesitate to contact me at [renee@rosascience.org](mailto:renee@rosascience.org) or at (570) 594-6896. I would be happy to set up meetings with you to discuss ROSA and our fundraising goals in greater detail. I greatly appreciate your support for this important effort and hope you will consider this request.

Respectfully,

Reneé Reilly, Ph.D.  
Executive Director  
Responsible Offshore Science Alliance (ROSA)  
[renee@rosascience.org](mailto:renee@rosascience.org)

ROSA also accepts restricted funds for specific research needs.



# What Would Benefit to VOWDA Be?

- VOWDA would have a way of helping to ensure and documenting that efforts are made to develop offshore wind in a manner that ***maximizes fisheries benefits and minimizes fisheries impacts.***
- Membership in ROSA could help achieve one of VOWDA's goals: to maximize environmental benefits and minimize environmental impacts.





# What is RWSC?

**RWSC**

Regional Wildlife Science Collaborative  
for Offshore Wind



The Regional Wildlife Science Collaborative's mission is to:  
“...conduct and coordinate relevant, credible, and efficient research and monitoring of wildlife and marine ecosystems that supports the advancement of environmentally responsible and cost-efficient offshore wind power development in US Atlantic waters.”



# RWSC's Governance Structure



## RWSC 2023 Steering Committee

- Atlantic Shores Offshore Wind
- Bureau of Ocean Energy Management
- Equinor
- Maryland Department of Natural Resources/Maryland Energy Administration
- Massachusetts Clean Energy Center
- National Audubon Society
- National Oceanic and Atmospheric Administration
- Natural Resources Defense Council
- New York State Energy Research and Development Authority
- Ørsted North America
- The Nature Conservancy
- US Fish & Wildlife Service

### Steering Committee

Each Sector selects three individuals to represent the Caucus on the Steering Committee



### Sector Caucuses

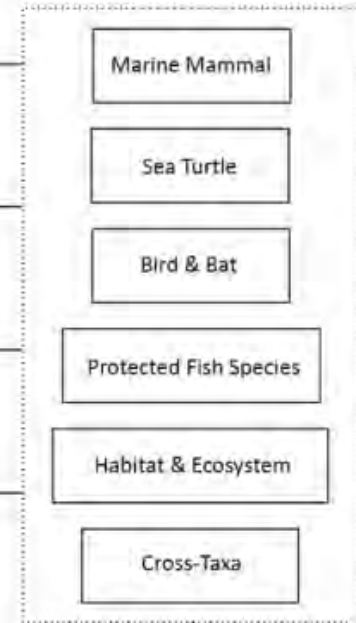
Federal

States

eNGOs

Offshore wind companies

### Subcommittees



Partners, research community, and others

**Director**  
Emily Shumchenia, PhD

**Coordinator & Other Staff**  
Avalon Bristow



**Senior Advisor**  
Nick Napoli

Derek Brockbank  
Norma Longhi

# RWSC Sector Caucus Rosters

**RWSC**

Regional Wildlife Science Collaborative  
for Offshore Wind



**RWSC**

Regional Wildlife Science Collaborative  
for Offshore Wind



## Sector Caucus Rosters - Updated June 2023

\* Entities that have provided financial contributions to the RWSC Annual Work Plan / Operational Budget.

### RWSC State Caucus

Maine\*  
New Hampshire  
Massachusetts\*  
Rhode Island  
Connecticut\*  
New York\*  
New Jersey\*  
Delaware  
Maryland\*  
Virginia  
North Carolina  
South Carolina

Current State Caucus members for Virginia are **Ryan Green – VA CZM and Becky Gwynn – VA Dept Wildlife Resources. RWSC would welcome a VOWDA rep as well.**

### RWSC Offshore Wind Industry Caucus

Offshore wind companies that have U.S. Atlantic offshore wind lease interests, have the intent to obtain a U.S. Atlantic offshore wind lease, are eligible bidders, or hold no current lease interest but express a commitment to understand offshore wind and wildlife research and how it can advance the industry are invited to participate in the RWSC Offshore Wind Industry Caucus. Companies that provide financial contributions may be joint ventures that contribute on behalf of parent companies and/or other associated ventures.

American Clean Power\*  
Atlantic Shores Offshore Wind\*  
Attentive Energy LLC\*  
Avangrid Renewables\*  
Bluepoint Wind  
Dominion Energy\*  
EDF-Renewables  
EDPR/Ocean Winds  
Equinor\*  
Invenergy\*  
Ocean Winds  
Ørsted North America\*  
RWE\*  
Shell  
SouthCoast Wind\*

US Wind\*

Vineyard Offshore\*

### RWSC Federal Caucus

Bureau of Ocean Energy Management (in-kind meeting support)  
Department of Energy (Subcommittee support staff provided in-kind)  
Fish and Wildlife Service  
NOAA Fisheries (Subcommittee support staff provided in-kind)  
Marine Mammal Commission  
Environmental Protection Agency, Region 1

### RWSC eNGO Caucus

Mass Audubon  
Mystic Aquarium  
National Aquarium  
National Audubon Society\*  
National Wildlife Federation\*  
Natural Resources Defense Council\*  
New England Aquarium  
New Jersey Audubon  
Ocean Conservancy\*  
Ocean Conservation Research  
The Nature Conservancy\*  
Wildlife Conservation Society

RWSC is hosting a webinar on its Draft Science Plan on Thursday, August 24, 11 am-12:30 pm ET.  
[https://zoom.us/meeting/register/tJlqcO-grjovHtyKkwOTnIYD4vpjG7\\_vKQOw#/registration](https://zoom.us/meeting/register/tJlqcO-grjovHtyKkwOTnIYD4vpjG7_vKQOw#/registration)



# RWSC Maintains an Offshore Wind & Wildlife Research Database <https://database.rwsc.org/>

## OFFSHORE WIND & WILDLIFE RESEARCH DATABASE

Explore the database of research projects and data collection activities that have been shared with RWSC Subcommittees or gleaned from publicly available sources (e.g., press releases, agency webinars, entity websites).



### Informs the RWSC Science Plan

RWSC Subcommittees use the database to identify data gaps and research needs to include in the RWSC Science Plan.



### Filters for easy viewing

Database entries are tagged with attributes to help users find the information they need.



[HOW TO USE THE DATABASE](#) →

[View and download](#) the full database content in [Airtable](#).

FILTER BY TAXON/TOPIC

[Birds & Bats](#)

[Fish](#)

[Habitat & Ecosystem](#)

[Marine Mammals](#)

[Sea Turtles](#)

[Technology](#)

# How Could VOWDA Be Involved?

- If funding to support VOWDA comes from the state of Virginia only, and if VOWDA provided funds to RWSC from their budget, RWSC would consider Virginia a contributing member and it would be appropriate for a state employee/s to "represent" Virginia in RWSC State Caucus meetings.
- Most contributing states provide \$30,000 per year (MA, CT, MD, NY, NJ) with Maine contributing less, based on their available budget.
- Contributing financially to RWSC is not a requirement for representing a state in the RWSC State Caucus.



# What Would Benefit to VOWDA Be?

- VOWDA would have a way of helping to ensure and documenting that efforts are made to develop offshore wind in a manner that ***maximizes ocean wildlife and habitat benefits and minimizes impacts to those resources.***
- Membership in RWSC could help achieve one of VOWDA's goals: to maximize environmental benefits and minimize environmental impacts.







# Questions/ Discussion

Photo by Alex Wilke, TNC

Extra Slides



**AIR POLLUTION**  
*DEQ*



**SHORELINE SANITATION**  
*VDH*



**DUNES & BEACHES**  
*MRC & Local Wetlands Boards*



**SUBAQUEOUS LANDS**  
*MRC*



**VIRGINIA CZM PROGRAM**  
*(DEQ - LEAD COORDINATING AGENCY)*



**POINT SOURCE & NONPOINT SOURCE WATER POLLUTION**  
*DEQ & Coastal Localities*



**MARINE FISHERIES**  
*MRC*



**CHESAPEAKE BAY PRESERVATION AREAS**  
*DEQ (CBPA)*



**TIDAL AND NONTIDAL WETLANDS**  
*MRC, DEQ & Local Wetlands Boards*

**PLANT PESTS & NOXIOUS WEEDS**  
*VDACS*



**COMMONWEALTH LANDS**  
*DWR & DCR*



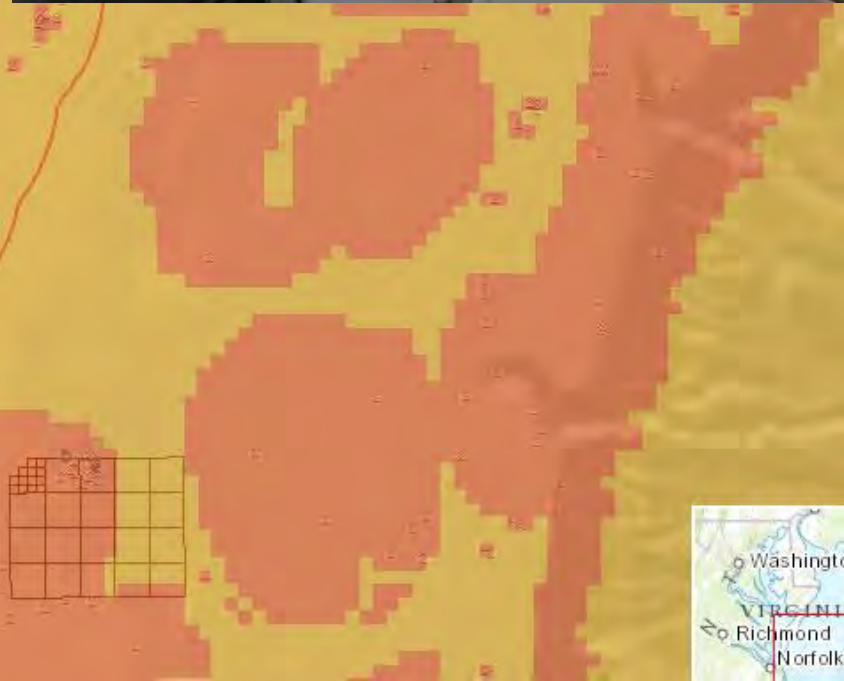
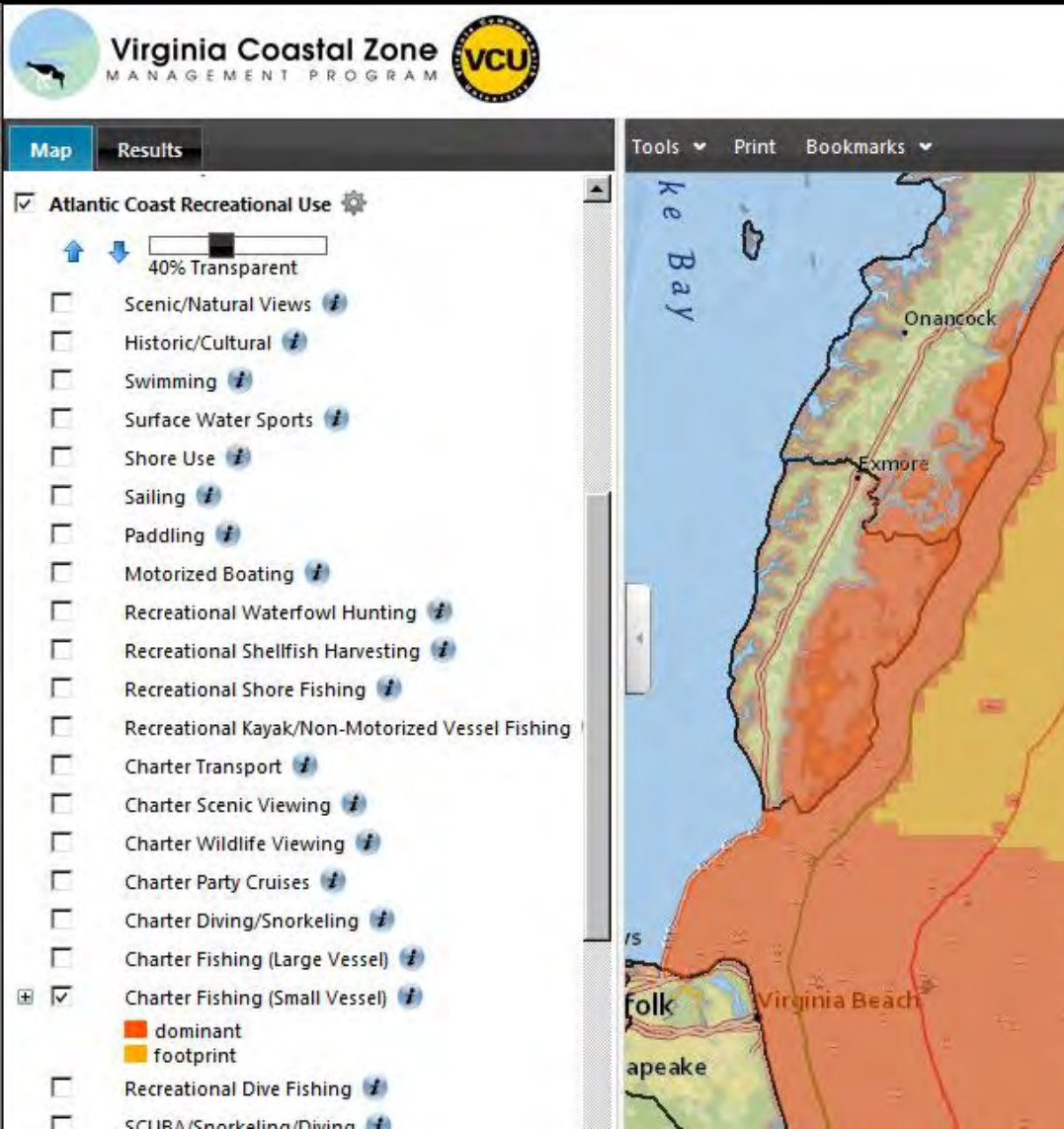
**WILDLIFE & INLAND FISHERIES**  
*DWR*





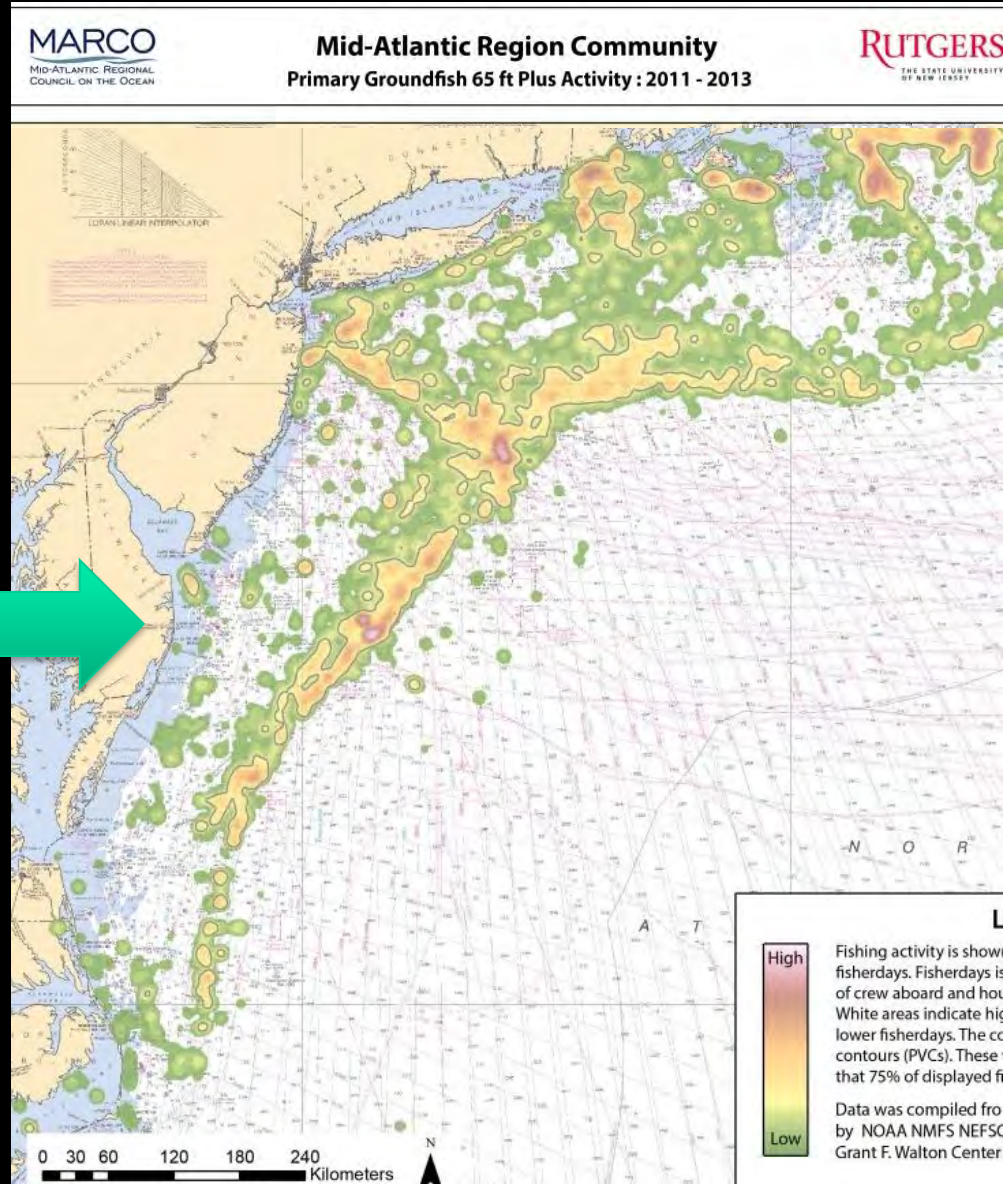
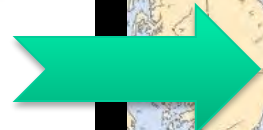
# 2012 Recreational Use Data

<http://coastalgems.org/>





# Vetted "Communities at Sea" Fishing Maps





# Vetted “Communities at Sea” Commercial Fishing Maps – CZM Grant to VCU





# 2012-15 Created Whale Data: CZM Grants (\$345k) to VA Aquarium

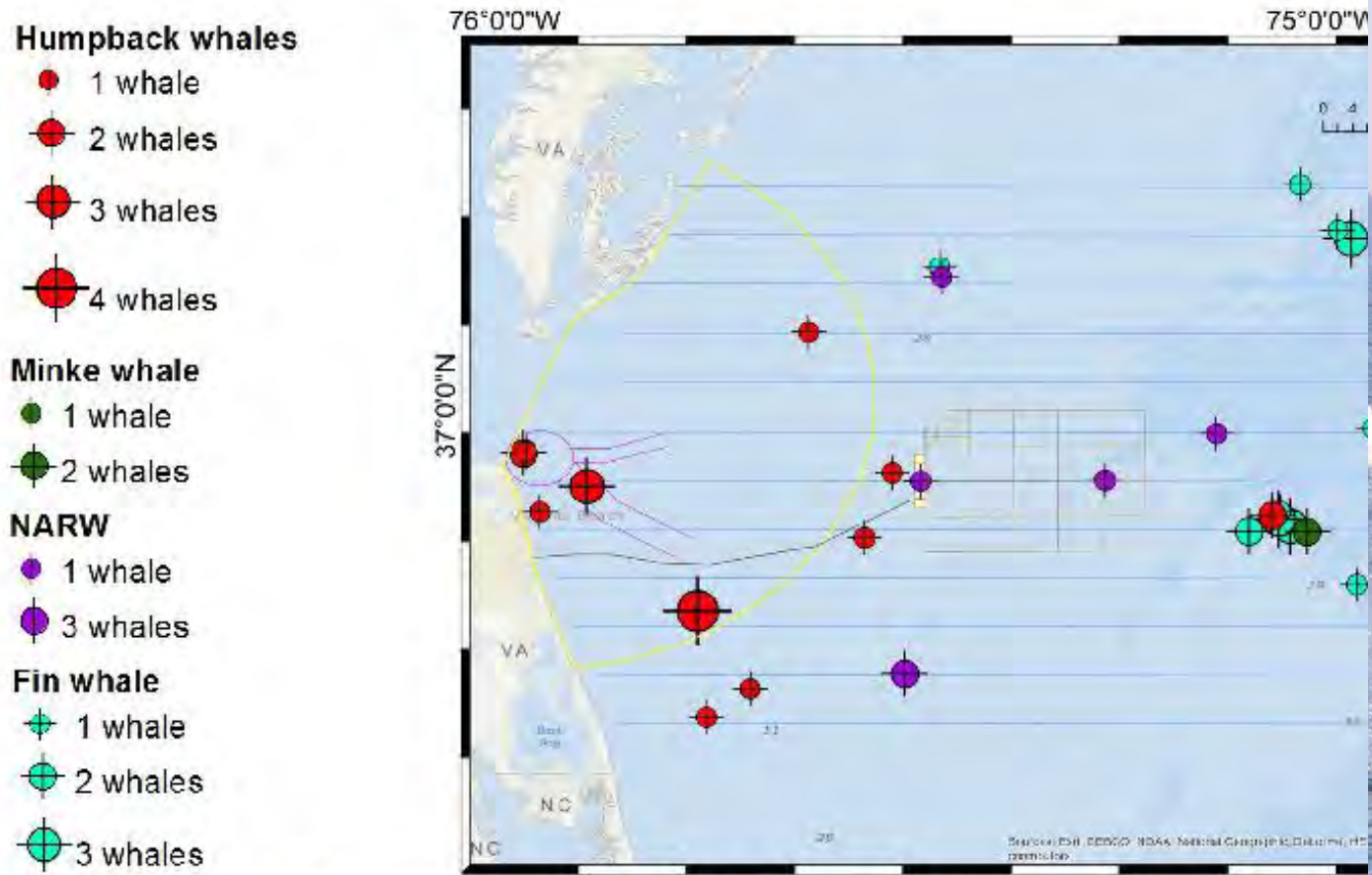
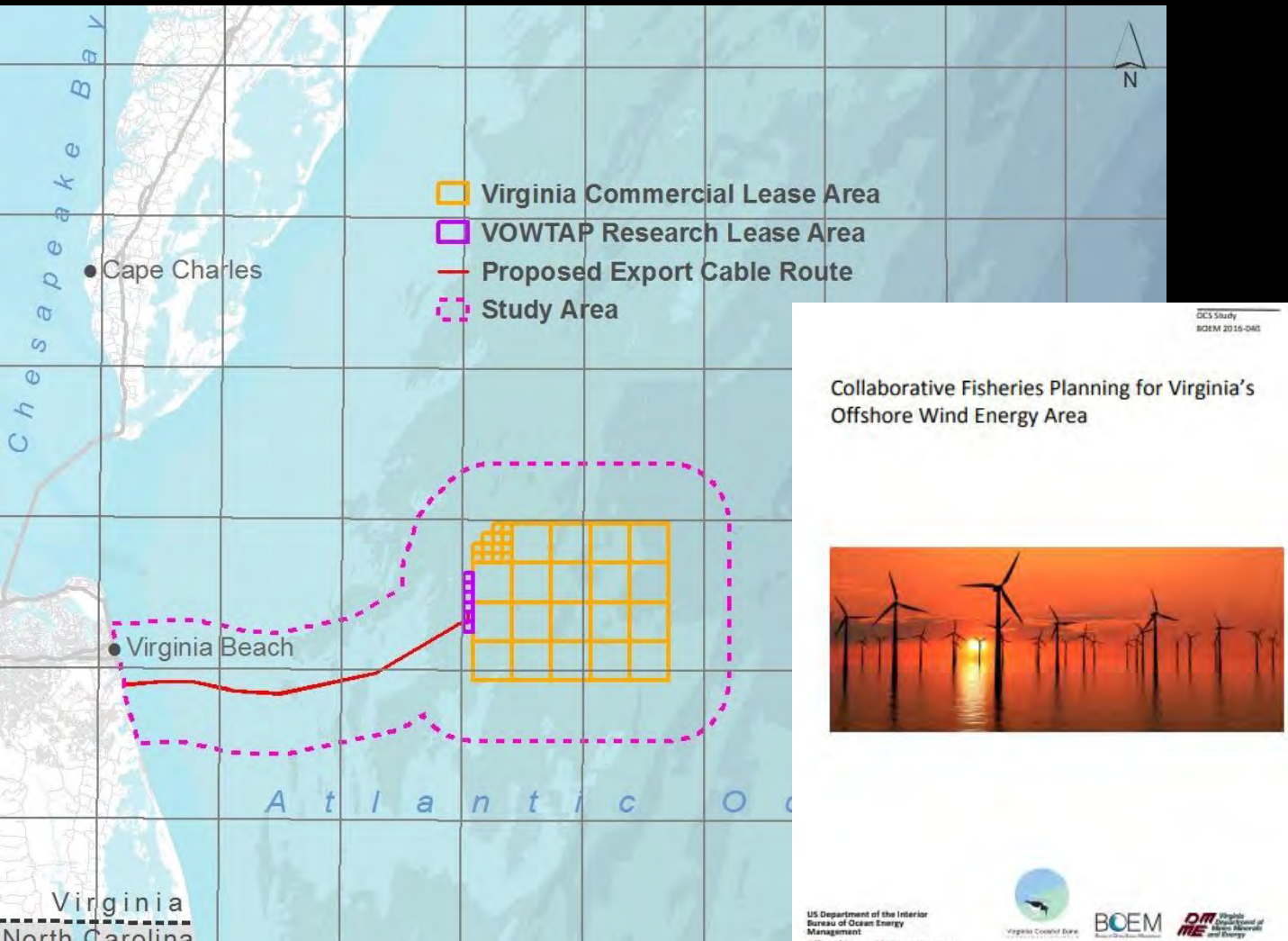


Figure 1. All large whales documented during aerial surveys in the proximity of the Virginia Wind Energy Area (VA WE) 2012 through March 2015. Size of each point reflects groups size.

Aerial surveys were funded under Virginia Coastal Zone Management Grant NA14NOS4190141 Task 95.04



# 2015 CZM Receives \$236k grant from BOEM & DMME for Fisheries Planning in and around Virginia's Wind Energy Area



DCS Study  
BOEM 2016-040

### Collaborative Fisheries Planning for Virginia's Offshore Wind Energy Area

US Department of the Interior  
Bureau of Ocean Energy Management

Virginia Coastal Zone

BOEM

DMME Virginia Department of Marine Resources and Energy





# 2016 CZM Grant to VCU for Research on Electromagnetic Effects on Fish

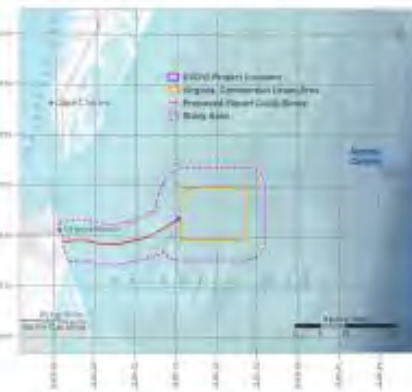
## Electromagnetic Field Effects on Marine Fishes in the Mid-Atlantic

### Wind Farms and Electromagnetic Fields

Many countries around the world, including the United States, are looking for ways to increase the amount of electricity generated through renewable energy sources. For coastal states, Virginia included, this has led to an exploration into offshore wind energy. As offshore wind farms develop, it is important to investigate potential impacts to the ocean ecosystem. The document summarizes the current state of knowledge regarding interactions between marine fish species and the Electromagnetic Field (EMF) emitted from transmission cables.

Along the east coast, several offshore wind farms are in development and one is already operational. The Block Island Wind Farm off of Rhode Island was the first commercial offshore wind farm in the United States. Similar projects in Maryland, New Jersey, and Virginia were various stages of development.

Twenty-seven miles off the coast, Virginia is moving forward on the mid-Atlantic's first offshore wind project in a federal lease area. Virginia is working with Dominion Energy and Ørsted Energy of Denmark, a global leader in offshore wind development, to build two 5-megawatt turbines in the Coastal Virginia Offshore Wind (CVOW) research lease area. Individual turbines in offshore wind farms typically connect to one or more main transmission power cables leading back to the mainland. These high voltage underground cables



© Commonwealth of Virginia Offshore Wind (CVOW) area off the coast of Virginia Beach, VA.

### What are Electromagnetic Fields?

Electromagnetic fields, otherwise known as EMF, include fields emitted from both electric and magnetic sources. EMFs are generated naturally as well as by human activities. Magnetic fields are used for orientation and migration by some fish and animals. Electric fields allow fish to detect prey and predators which assists with feeding and predator avoidance.

Like a measurable EMF (although the field emitted has been shown to be less than that of typical household appliances). An EMF can be measured in terms of the intensity of both the magnetic and electric fields, as well as its frequency.

Because some fish use the Earth's magnetic fields for navigation and other fish detect electric fields as part of their search for prey, EMF associated with transmission cables has been studied for its impacts on fish behavior. Research to understand how EMF affects fish has focused on the most sensitive species to determine whether significant negative or positive impacts are associated with exposure to these produced sources of EMF.

### What do we know about cables and burial?

Two types of cables may be used in transferring wind generated electricity in coastal waters in the United States: alternating current (AC) and direct current (DC). AC power transmission cables are used extensively in Europe for offshore energy facilities, and many of the offshore wind projects proposed in the US. Similar intensity cables are used to connect the turbines and a larger export cable takes the electricity to shore.

Cables are covered in sheathing to protect the cable and minimize the electric field from affecting the external environment. The sheathing usually includes steel wires or tape around the cables to enhance the mechanical strength of the cable, and the thicker the sheathing materials the weaker the strength of the EMF outside the cable. The cables are generally buried by ocean currents or trenched at a depth of about 5 feet, as benthic and demersal (bottom and near bottom) fish and shellfish are more exposed to EMF than species living elsewhere in the water column. Burying the cables is a way to mitigate EMF exposure, and the EMF measured above buried cables become equal to natural background EMF within a few meters of the cables.

### What do we know about how marine species are impacted by EMF?

The Bureau of Ocean Energy Management (BOEM) has evaluated published research to summarize the potential effects of EMF on both demersal (bottom species) and pelagic (open water) fish and shellfish species. Reported information on actual sensitivity to EMF exists only for a handful of the most sensitive species, as this research is still developing. Research findings are summarized below and effects are noted by the following legend:

**B** Behavior **M** Migration & movement **V** Vital Signs

Different species of bony fishes respond differently to EMF exposure:

#### Bony Fishes



**B** **M** **V**

- Atlantic cod do exhibit some sensitivity toward emitted EMF.
- European flounder exhibited no response to EMF.
- Potential orientation and navigation effects were documented on Atlantic Egg and Spanish mackerel species.
- Salmon and trout species detect magnetic fields to help determine their migratory patterns and EMF could disrupt migration behavior.
- Some behavioral and anatomical responses by yellowfin tuna have been reported.
- Salmon have exhibited heart issues in some EMF ranges.
- Chinook salmon and green sturgeon migration was not impacted by an HVDC cable.
- EMFs caused embryonic development of brown trout and rainbow trout in freshwater environments.
- EMF can change blood circulation in embryos and larvae of pink, carp, and brown trout.
- There are conflicting reports on whether or not EMF affects predator and prey detection and navigation in sturgeon species.

#### Eels



**M** **V**

- European eels decrease their swimming speed as they pass over cables; the effect is described and determined to be of minor significance.
- Eels have elevated heart rates when exposed to certain levels of EMF.

#### Sharks



**B** **M**

- Sharks and rays are 14,000 times more sensitive to EMF than bony fish.
- Scientists have found evidence of EMF effects on multiple aspects of sharks and rays including prey and predator detection and navigation issues.
- Attraction to cables varies by species and the intensity of the emitted EMF; some species are attracted to the cables while others are repelled.
- Some species of sharks can detect buried cables up to 20 meters away.
- Some species have been shown to attack exposed electrodes emitting EMF in some instances.
- Sandy dogfish, *Squaliformus nasus*, were found to non-randomly associate nearer to the cables when energized.

#### Skates & Rays



**B** **M**

- Skate species differ in their responses to EMF exposure including:
- Little Skates (*Laeonucis erinacea*) traveled farther but more slowly which could mean higher energetic costs.
  - L. erinacea make larger turns, which could be attributed to increased exploratory activity and/or area restricted foraging behavior.
  - Thornback skates (*Raja clavata*) exhibited a response to the EMF from an energized cable; the response was variable and not predictable.

#### Shellfish

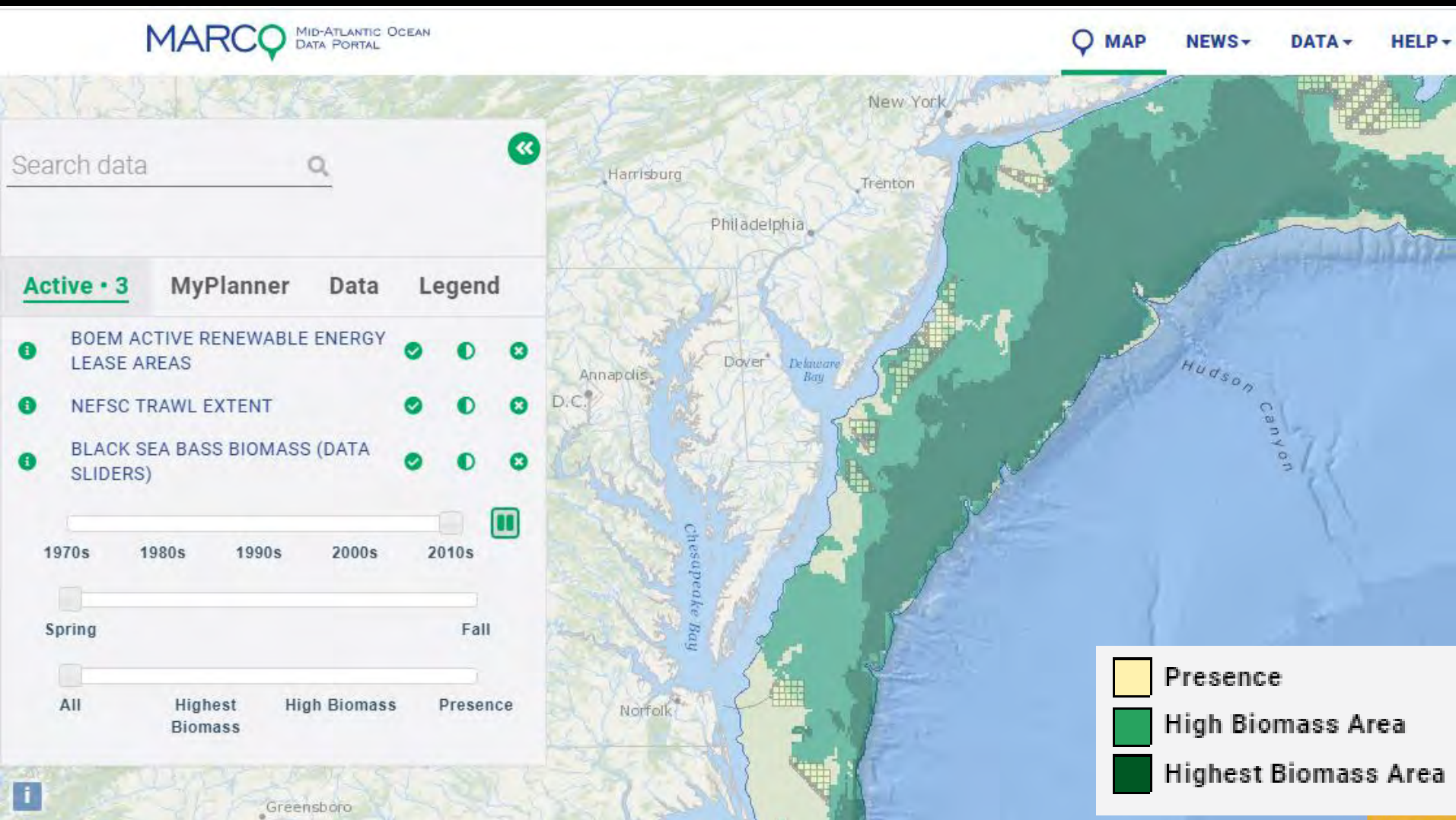


**B** **M**

- The American lobster had small behavioral responses to EMF exposure including:
- Lobsters were observed making larger turns while foraging.
  - Small behavior effects on the lobsters that did not act as a barrier to movement?



# 2018-19 CZM Funds “Fish Through Time”

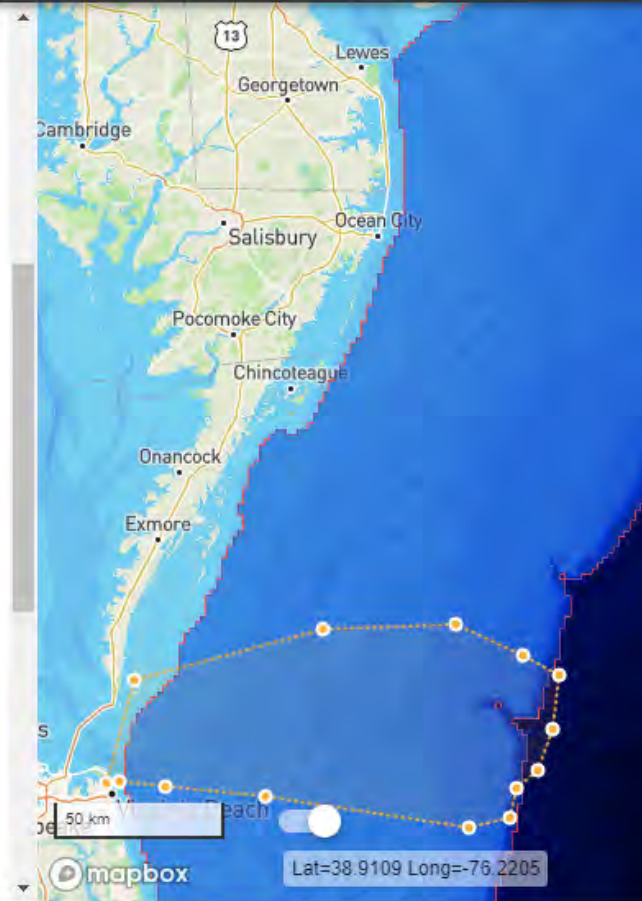
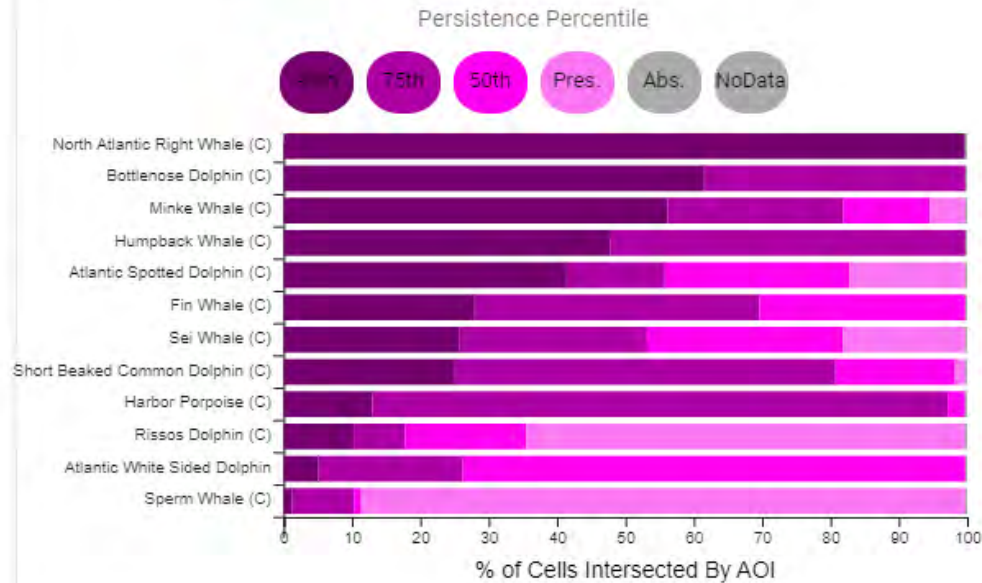


\$50k VA CZM investment in animated maps of core abundance of 17 fish species over time and future

# 2019-20 CZM Co-funds (\$55k) TNC's Wind Siting Tool

SUMMARY ALL MAMMAL DATA ABUNDANCE BY MONTH

## All Marine Mammal Species



Tool allows (<https://maps.tnc.org/marinemap>)  
you to draw a polygon and receive reports of marine life  
relative abundance in that area.



# 2019-20 CZM Funds VCU to Document Economic Value of Ocean Fisheries

<https://www.deq.virginia.gov/home/showpublisheddocument/12614/637721498930970000>

## VIRGINIA'S COMMERCIAL FISHING: BEYOND THE BAY

A report on the value of Virginia's  
ocean-caught fisheries



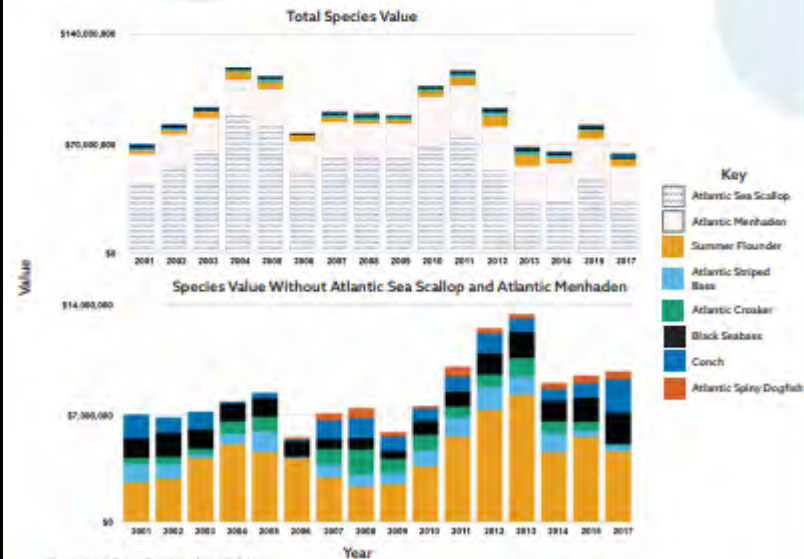
Virginia Coastal Zone  
MANAGEMENT PROGRAM



June 2021

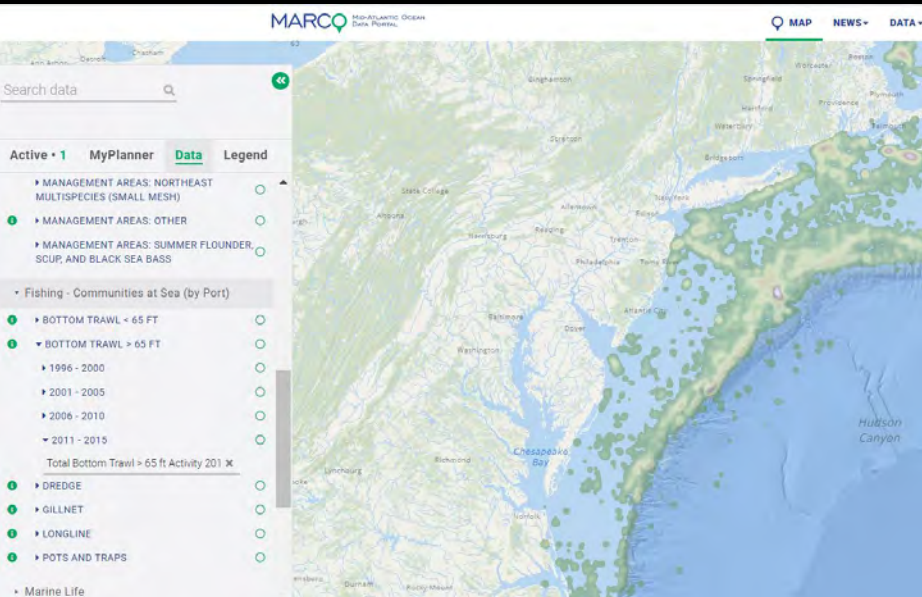
## THE VALUE OF VIRGINIA'S MOST COMMERCIALY IMPORTANT OCEAN-CAUGHT SPECIES

Commercial fishermen travel from just a few miles offshore to hundreds of miles off New England to fish before heading back to their home ports in Virginia. This section summarizes landing information on some of Virginia's most important commercial species caught beyond the Chesapeake Bay, from the mean low water (MLW) mark to 200 nautical miles offshore in the Atlantic Ocean. Hard clams and oysters have been excluded from these data because they are not typically considered ocean-caught species. These data were derived from both the Virginia Marine Resources Commission and NOAA landings, removing those values associated with the Chesapeake Bay to arrive at the value of species caught in the Atlantic, except for the value of conch<sup>1</sup>. The first graph below shows the combined value of some of Virginia's most commercially important species caught in the Atlantic Ocean from 2001-2015, and 2017. The second graph shows the same data as the first, but without the values of Atlantic sea scallop and Atlantic menhaden to show data for other species in greater detail. The values of Atlantic sea scallops and Atlantic menhaden are orders of magnitude larger than the other species, and emphasize the importance of the fisheries to Virginia.





# 2019 - 2022 NOAA ROP Grants to MARCO to Improve Mid-A Fisheries & Other Data



FY19 = \$135k

FY20 = \$135k

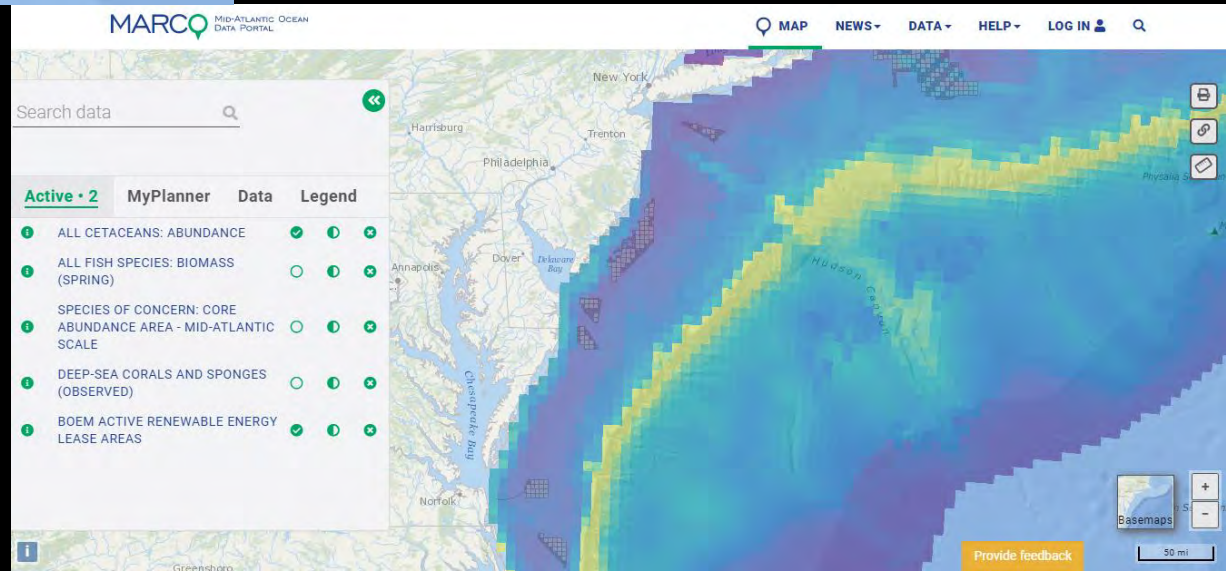
FY21 = \$207k

FY22 = \$207k

FY23 = \$207k

Total = \$891k

9-state effort is underway to create a fisheries compensation fund for offshore wind impacts to fisheries

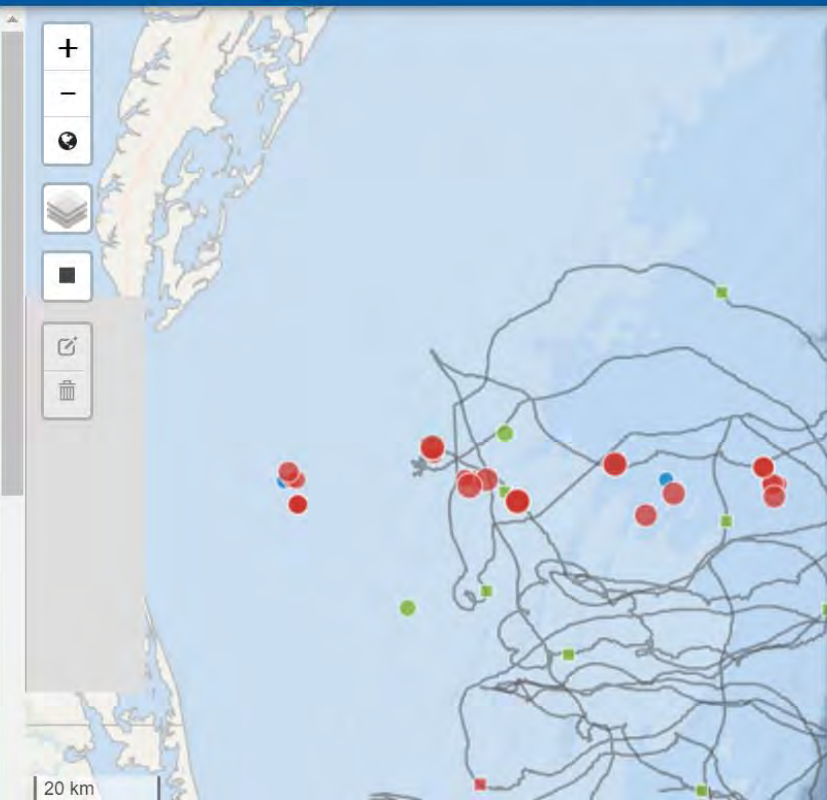
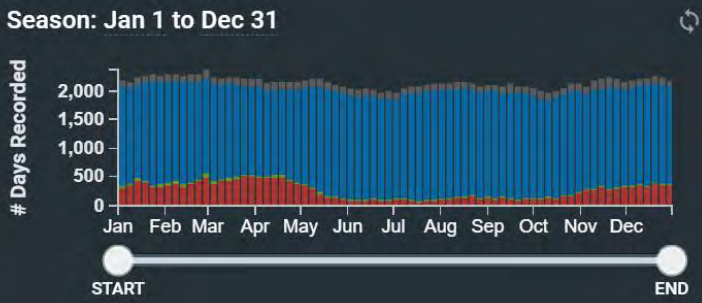


# 2020 CZM Grant (\$50k) to the Regional Wildlife Science Collaborative to Develop a Baleen Whale Monitoring Plan for Virginia's Wind Energy Area

Select a Species/Group  
**North Atlantic Right Whale**

Select Platform Type(s)  
Bottom-Mounted Mooring  Surface Buoy   
Glider (Slocum)

ADVANCED FILTERS...



Legend

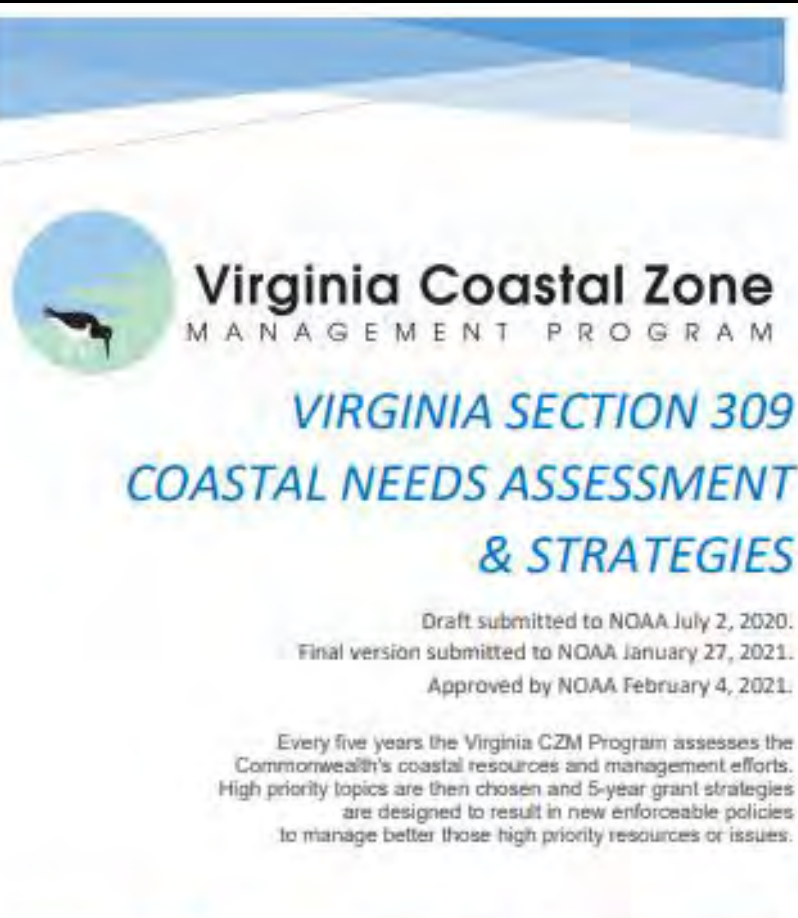
Recorded Days:  
157,265 of 157,265 (100%)

Deployments:  
886 of 886 (100%)

- Stationary Platforms
- # Days Detected
  - 1,000
  - 500
  - 100
  - 50
  - 1
  - 50 (Possibly)
  - 25 (Possibly)
  - 1 (Possibly)
  - 0 (Not Detected)
  - Not Analyzed
  - Normalize by Effort
- Gliders

# 2021-25: 3<sup>rd</sup> CZM Ocean Strategy

<https://www.deq.virginia.gov/home/showpublisheddocument/8346/637540014441970000>



- Develop a Virginia Ocean Plan
- ~\$183k/year for 5 years
- NOAA-approved
- Includes stakeholder engagement in :
  - **Policy** development
  - ID of additional **OSW lease area(s)**, offshore **aquaculture** areas and potential **conservation** areas in support of 30% by 2030 goal
  - Refinement & implementation of VA **ocean acidification** plan
  - Incorporation of **marine mammal/sea turtle conservation** plans





# 2021-25 CZM to Create a Virginia Ocean Plan

## Plan to address:

- Additional offshore wind leases
- Potential offshore aquaculture
- Marine habitat, recreation & fisheries protection
- Marine mammal & sea turtle conservation
- Ocean acidification
- Shifting species
- Military & shipping needs
- *Ocean sand & heavy minerals mining?*

## Year 1 Grants

- W&M CPC: research other state plans, develop draft plan outline and communication strategy
- VCU Fisheries Coordinator: continue to address fisheries concerns
- DWR: update marine mammal/sea turtle conservation plans
- VA Aquarium: whale monitoring analysis
- MARCO – regional coordination



# Year One October 2021 – September 2022

92.01	W&M/CPC	OR: Virginia Ocean Plan Policies (1.49 FTE)	\$60,000	\$0	\$60,000	\$183,000
92.02	VCU	OR: Virginia Ocean Plan Stakeholder Engagement (.35 FTE)	\$44,000	\$0	\$44,000	
92.03	DWR	OR: Integration of Marine Mammal/Sea Turtle Conservation into Virginia Ocean Plan (.48 FTE)	\$50,000	\$0	\$50,000	
92.04	CSSF	OR: MARCO Liaison to Virginia Ocean Plan (.31 FTE)	\$29,000	\$0	\$29,000	

## Toward a Virginia Ocean Plan: Ocean Management Policy Recommendations

Nate Dominy & Luke Foley



WILLIAM & MARY  
LAW SCHOOL  
VIRGINIA COASTAL POLICY CENTER

## CREATING A REGIONAL OCEAN & COASTAL ACIDIFICATION MONITORING NETWORK IN THE MID-ATLANTIC

MID-ATLANTIC COASTAL ACIDIFICATION NETWORK

VIRGINIA OCEAN PLANNING MEETING

FEBRUARY 2022



MACAN  
Mid-Atlantic Coastal Acidification Network

MARCO  
Mid-Atlantic Regional  
Council on the Ocean

MARACOOS  
Ocean Information for a Changing World

<https://www.deq.virginia.gov/home/showpublisheddocument/8346/637540014441970000>



# Year Two October 2022 – September 2023

Task	Grantee	Title	Federal \$	Match \$	Total \$
92.01	W&M/CPC	OR: Virginia Ocean Plan Policies (1.49 FTE)	\$60,000	\$0	\$60,000
92.02	VCU	OR: Fisheries Stakeholder Engagement (.34 FTE)	\$44,000	\$0	\$44,000
92.03	DWR	OR: Integration of Marine Mammal/Sea Turtle Conservation into Virginia Ocean Plan (.48 FTE)	\$50,000	\$0	\$50,000
92.04	TBD	OR: Data Collection	\$39,000	\$0	\$39,000



# Draft Plan Outline



- I. Introduction
- II. Supporting Existing Ocean Uses and Promoting a Healthy Ocean
- III. Supporting Emerging Ocean Uses to Build a Sustainable Ocean Economy
- IV. Addressing the Changing Ocean Climate
- V. Plan Implementation
- VI. Appendices