



2024 Work Plan

JANUARY 2024

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Introduction

This document provides an overview of work to be conducted by members of the Mid-Atlantic Ocean Data Portal technical team (Portal Team) in 2024 under the direction of the Mid-Atlantic Regional Council on the Ocean (MARCO) and its Ocean Mapping & Data Team (OMDT). The plan covers a broad range of priorities including map data additions, tool and site enhancements, GIS database management and stakeholder engagement activities.

This year will likely see the most extensive transformation of the Portal since its relaunch in 2015. For the first time since that year – when signature features such as the Ocean Stories and Groups and the basic design scheme utilized today were all introduced – the Portal will undergo a full redesign to modernize its appearance and make the non-Marine Planner sections more responsive to mobile devices. (Meanwhile, a mobile app version of Marine Planner is being developed by a Monmouth University student-faculty team under MARCO's direction.) The Portal's back end will also be overhauled, with its OpenLayers technology stack updated to version 8, its Data Catalog migrated to a more intuitive open source system, and its data manager revamped to unlock new possibilities for tool improvements and data organization.

On the strength of its 6,000+ map layers and user-friendly GIS tools, the Portal continues to grow as a go-to resource for stakeholders to learn about and participate in the Mid-Atlantic's major ocean planning issues. That will continue in 2024 with the advance of offshore wind energy developments in the Central Atlantic and New York Bight, the Hudson Canyon marine sanctuary nomination and other high-profile public processes. State-led ocean planning efforts have also commenced in Delaware and Virginia, and the Portal Team will accommodate any data needs that arise from those processes.

While this document provides a roadmap for 2024 based on the best information available at the time of this writing, a project of this kind requires ample flexibility to account for unforeseen developments including regulatory decisions (e.g., recommendations from Coast Guard port access route studies, advancements in wind farm projects), changes in funding availability, and data requests with high urgency that can alter schedules or the team's workflow. The team has limited capacity, but will work to meet these challenges to the best of its ability. The Portal Team currently consists of:

- Mid-Atlantic Regional Council on the Ocean (MARCO): Avalon Bristow (executive director), September Meagher, Nick Napoli (Portal Team lead), Janet Reimer
- Duke University Marine Geospatial Ecology Lab: Deborah Brill, Jesse Cleary, Corrie Curtice (marine life data manager), Sarah DeLand, Ei Fujioka
- Ecotrust: Anna Cho, Ryan Hodges (developer)
- Monmouth University Urban Coast Institute: Tony MacDonald, Jay Odell, Karl Vilacoba (project manager)
- New York Department of State: Jeff Herter
- Rutgers University Center for Remote Sensing and Spatial Analysis (CRSSA): John Bognar, Richard Lathrop, Jim Trimble

Part I: Data Priorities

Outlook for 2024: An influx of new data and a series of technical improvements to Marine Planner's back end will significantly improve the user experience for those browsing the Portal's Fishing theme. Planning discussions have begun with the Rutgers University team responsible for creating the Communities at Sea (CAS) map collection to refresh these layers for the first time in seven years. Due to changes to the original methodology, the 1996-2015 CAS maps will be fully replaced, and new maps will be created to span the gap in years since the last version. At the same time, upgrades to the Portal's data manager will present options for replacing the current search widget system needed to explore the hundreds of Communities at Sea maps showing activity by individual ports (as well as the Marine Life Library). The Portal Team will continue its work expanding and reorganizing its commercial fishing data in response to input from the industry, including by adding a series of VTR-derived "fishing footprint" maps produced by NOAA and reorganizing the Fishing theme where feasible by fishery management plans.

After replacing the Portal's marine mammal and sea turtle maps improved products in 2023, the Duke University-led Marine-life Data and Analysis Team (MDAT) will commence work on new avian and fish products. The MDAT seabird models, which currently show distributions by season, are expected to be replaced with maps showing monthly distributions in the first quarter of 2024. MDAT, the Mid-Atlantic and Northeast portals, and the NOAA Northeast Regional Fish Habitat Assessment team are also collaborating to add maps modeling habitat use by 14 commercially and ecologically important fish species that fill gaps in the Marine Life theme. The work of MARCO- and NROC-led Regional Wildlife Science Entity may also yield additional map data.

Finally, the debut of the Conservation theme in 2023 has positioned the Portal to play an important public comment and engagement role for proposed actions this year. The theme would serve as the home for any spatial data related to the Hudson Canyon sanctuary designation process and any next steps for the NOAA-proposed North Atlantic right whale seasonal speed zones, among others. The theme's new State-Designated Areas collection will be expanded at the direction of the MARCO states, and a collection of maps illustrating the sites of coastal parks, public beaches and other types of preserved lands will also be added.

The following is an overview of planned data additions, enhancements and scoping activities in the year ahead. "External Dependencies/Sources" refer to data providers and other outside organizations whose collaboration is essential for developing products. "Update Frequency" is a suggested maintenance schedule for data, provided here as an indication of potential data needs/work focus beyond this annual plan period. Further explanation of individual data items follows the table.

The table presents a list of map layers for each Marine Planner theme that may advance under anticipated funding levels. Additional products could proceed with the availability of unanticipated funding and partnerships.

2024 DATA PRIORITIES AT A GLANCE

Theme	Layers	External Sources / Dependencies	Update Frequency
Administrative	<ol style="list-style-type: none"> 1. IOOS Regions 2. Bay Closure Lines 3. State Lateral Boundaries 4. Congressional districts 5. RTOC Regions update 6. Tribal Leaders Directory updates 7. Data resulting from engagement with Tribes 8. Port statistical areas 9. National Register of Historic Places sites 10. Review of federal data providers for new and useful options 	<ol style="list-style-type: none"> 1. Marine Cadastre (MC) 2. MC 3. MC 4. MC or other source TBD 5. EPA 6. BIA 7. TBD 8. USACE 9. NPS 10. Various 	<ol style="list-style-type: none"> 1. TBD 2. Auto updates via service 3. Auto updates via service 4. TBD 5. 1-2 years 6. 1-2 years 7. TBD 8. Auto updates via service 9. Auto updates via service 10. TBD
Conservation	<ol style="list-style-type: none"> 1. Hudson Canyon sanctuary proposals 2. New Jersey and other state marine conservation measures 3. Coastal protected lands (products may also be placed in Recreation theme) 	<ol style="list-style-type: none"> 1. NOAA 2. NJDEP, MARCO states 3. TNC 	<ol style="list-style-type: none"> 1. TBD 2. TBD 3. TBD
Fishing	<ol style="list-style-type: none"> 1. NOAA commercial fishing footprint 2. Reorganization of data by fishery 3. Management areas, proposed management areas, and closures 4. Aquaculture 5. Refresh of Communities at Sea data 6. Recreational fishing (for hire and party/charter boat) 	<ol style="list-style-type: none"> 1. NOAA/NEFSC 2. None 3. NOAA/NMFS 4. MC 5. Rutgers/TNC 6. TBD 	<ol style="list-style-type: none"> 1. 1-2 years 2. Ongoing 3. Ongoing 4. Auto updates via service 5. TBD 6. TBD

<p>Habitat</p>	<ol style="list-style-type: none"> 1. Artificial reefs 2. Seagrasses 3. NOAA bathymetry / BlueTopo / spatial priorities study products 4. Data to support Delaware Ocean and Bay Plan, Virginia Ocean Plan, and other state priorities 	<ol style="list-style-type: none"> 1. MARCO states 2. MC 3. NOAA 4. MARCO states, TBD 	<ol style="list-style-type: none"> 1. 1-2 years 2. Auto updates via services 3. TBD 4. TBD
<p>Marine Life</p>	<ol style="list-style-type: none"> 1. Marine mammal strandings (2021-23 data) 2. Avian relative density monthly maps 3. Marine mammals vulnerable to climate 4. Northeast Regional Fish Habitat Assessment products 5. Essential fish habitat updates / habitat assessments 6. Shark/highly migratory species 7. Marine life changes over time 	<ol style="list-style-type: none"> 1. NOAA/state stranding centers 2. Duke/MDAT 3. Duke/MDAT 4. MAFMC/NEFMC 5. NOAA 6. NOAA, WHOI 7. Duke/MDAT 	<ol style="list-style-type: none"> 1. 3-5 years 2. 3-5 years 3. 3-5 years 4. TBD 4. Auto updates via service 5. TBD 6. TBD 7. TBD
<p>Maritime</p>	<ol style="list-style-type: none"> 1. AIS vessel transit counts (2023) 2. USCG proposed areas and studies 3. New submarine cables 4. Submarine cable landing stations 5. Aids to Navigation update 6. Vessel routing measures 7. NARW proposed speed zones decision 8. Sand resource products 9. Docks and other port location products 	<ol style="list-style-type: none"> 1. USCG, MC 2. USCG 3. Data from developers, MC 4. MC 5. MC 6. MC, USCG 7. NOAA 8. BOEM MMIS, TBD 9. USACE, TBD 	<ol style="list-style-type: none"> 1. 1-2 years 2. Ongoing 3. Ongoing 4. Auto update via service 5. Auto update via service 6. Auto update via service 7. TBD 8. TBD 9. Auto update via service
<p>Oceanography</p>	<ol style="list-style-type: none"> 1. MARACOOS oceanography products 2. Wind speeds and directions at surface and hub heights 	<ol style="list-style-type: none"> 1. MARACOOS 2. Rutgers/NJBPU 3. MC 4. NE Portal / MARACOOS / NERACOOS 	<ol style="list-style-type: none"> 1. TBD 2. TBD 3. Auto updates via service 4. Auto updates via service

	<ol style="list-style-type: none"> 3. Tropical cyclones - overhaul and inclusion of post-2016 data 4. Ocean observing buoys and stations 5. Ocean wave resource potential 6. Marine heat waves 	<ol style="list-style-type: none"> 5. MC 6. NOAA 	<ol style="list-style-type: none"> 5. TBD 6. TBD
Recreation	<ol style="list-style-type: none"> 1. Coastal water trails (NY and NE) 2. SCUBA diving sites 3. Beach recreation app products 	<ol style="list-style-type: none"> 1. NE Portal 2. Industry representatives, TBD 3. MARCO, MARACOOS, MACO non-con recreation work group 	<ol style="list-style-type: none"> 1. 3-5 years 2. 3-5 years 3. TBD
Renewable Energy	<ol style="list-style-type: none"> 1. Updated federal and state offshore wind lease and wind energy area boundaries 2. New layers to reflect advancement of projects (proposed or installed turbine locations, substations, cable routes, etc.) 3. Offshore wind ports 4. Central Atlantic WEA lease sales 	<ol style="list-style-type: none"> 1. BOEM/MC and state partners 2. BOEM 3. MARCO states 4. BOEM 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. Ongoing 4. TBD
Security	<ol style="list-style-type: none"> 1. Maintenance of existing layers, additions and deletions in consultation with Navy and NOAA 2. Munitions and explosives 3. Military Flight Tracks and Military Training Routes 	<ol style="list-style-type: none"> 1. Navy/MC 2. MC 3. MC 	<ol style="list-style-type: none"> 1. Ongoing 2. Auto updates via service 3. Auto updates via service
Socioeconomic	<ol style="list-style-type: none"> 1. Ocean Economics GDP 2. Recreational/coastal tourism economics 	<ol style="list-style-type: none"> 1. NOAA eNOW 2. TBD 	<ol style="list-style-type: none"> 1. 3-5 years 2. TBD
Water Quality	<ol style="list-style-type: none"> 1. Ocean acidification monitoring sites 2. No discharge zones 3. Marine debris/balloon litter on monitored beaches 	<ol style="list-style-type: none"> 1. MACAN/University of Virginia 2. EPA 3. MARCO states/VDEQ 4. MACAN/Stony Brook University 5. MC 	<ol style="list-style-type: none"> 1. Ongoing 2. Auto updates via service 3. Annually 4. TBD 5. Auto updates 6. TBD

	4. Acidification hot spots 5. Wastewater outfalls updates 6. Abandoned and Derelict Vessels (ADVs) 7. Marine Carbon Dioxide Removal project locations	6. TBD 7. TBD	7. TBD
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Administrative

- **IOOS Regions:** The Marine Cadastre (MC) has produced a map delineating the boundaries between organizations including MARACOOS, NERACOOS and SECOORA. This map, or a variation created by the Portal Team, may be added pending a review by MARACOOS.
- **Bay Closure Lines:** The MC is developing a map showing official legal boundaries between bays and bordering water bodies. This map may be added pending a review by the MARCO states.
- **State Lateral Boundaries:** The MC is developing this map based on BOEM data. This map may be added pending a review by the MARCO states.
- **Congressional Districts:** The Portal’s current needs to be updated/replaced based on recent election results.
- **Tribal Leaders/ RTOC Regions Updates:** Information presented in the BIA Tribal Leaders Directory and EPA RTOC Regions must be reviewed and revised as needed to ensure they’re up to date.
- **Tribal Engagement Data:** MARCO is preparing to initiate a consultant-led effort to engage Tribal entities throughout the region on ocean issues, data needs, and best practices for data sovereignty. Data additions will be scoped based on input gathered through this process.
- **Port Statistical Areas:** Shows the boundaries/jurisdictions of the region’s port authorities.
- **National Register of Historic Places Sites:** Per the input of recreational diving stakeholders, this National Park Service data showing the locations of protected historic sites will be added. Includes some offshore wrecks and maritime resources such as historic lighthouses and Coast Guard stations.
- **Federal data options:** A sweep of prominent federal map data providers (e.g. USDOT BTS, EPA EJScreen) will be conducted to seek new and useful layers. This is a step taken early each year. Data gathered may not be limited to the Administrative theme.

Conservation

- **Hudson Canyon Sanctuary Proposal(s):** The Portal Team will add any data (such as proposed boundaries) that arises from the pending proposal to designate the Hudson Canyon as a marine sanctuary.

- **State Marine Conservation Measures:** Data comparable to the Virginia blue crab, oyster and SAV sanctuaries from New Jersey and other states (if available) will be added to the “State-Designated Areas” collection in the theme.
- **Coastal Protected Lands:** The Portal Team is examining options for a series of map layers showing lands along the coast that are preserved as parks, passive open space, rights of ways, and other features. A combination of maps produced by the USGS’s PAD-US database and the Nature Conservancy will be evaluated. Some of the products may be placed in the Recreation theme.

Fishing

- **Fishing Footprint Areas:** Feedback from fishing stakeholders led to the recommendation that the Portal incorporate VTR-based commercial fishing footprint data [posted online by NOAA](#). In partnership with the Northeast Portal, products from this extensive data collection will be added to the MARCO Portal.
- **Reorganization of Theme by Fishery:** The team will explore a suggestion by industry stakeholders that the Portal’s fishing theme be reorganized by federally managed fishery rather than data type.
- **Management Areas, Proposed Management Areas, and Closures:** The team will consult the NMFS regional office, fishery management councils and others to ensure the current layers are up to date and replace/retire them as needed.
- **Aquaculture:** The Marine Cadastre has created a new version of its national aquaculture areas map and is in the process of adding individual maps to fill gaps for two missing MARCO states (Maryland and Delaware).
- **Communities at Sea:** Preliminary discussions have begun with the Rutgers researchers responsible for the original Communities at Sea maps for creating new maps to bridge the gap from where the data ended in the last versions (2015). The new maps may utilize a new methodology, potentially leading to a full replacement of the 1996-2015 layers.
- **Recreational Fishing:** Options are being investigated for improving the Portal’s recreational fishing data to better reflect for-hire, charter/party boat, and fishing by individual boat owners.

Habitat

- **Artificial Reefs:** The Portal’s Artificial Reefs layer is periodically updated with input from MARCO state staff and the OMDT.
- **Seagrasses:** The Marine Cadastre will replace its Seagrasses map layer in 2024 with a new version containing new data and changes to its cartography.
- **NOAA Bathymetry/Spatial Priorities:** NOAA has been extending a BlueTopo map along the Atlantic Coast containing a compilation of the nation's best available bathymetric data. The Portal will monitor its extension into the Mid-Atlantic for possible inclusion. Further bathymetry maps and other additions could be produced through a spatial priorities study process currently being scoped by MARCO and NOAA.

- **State Ocean Planning Priorities:** The Portal Team will respond as needed to add and furnish data to support the drafting of the Delaware Ocean and Bay Plan, Virginia Ocean Plan, and similar projects being carried out by MARCO states. Data may not be limited to the Seafloor Habitat theme.

Marine Life

- **Marine Mammal Strandings:** Given high public interest in this topic, efforts will be made to update the marine mammal stranding maps to incorporate 2021-23 data. One option could be the addition of NOAA's 2016-23 humpback unusual mortality event layer.
- **Avian Relative Density Models:** The Duke University-led Marine Life Data and Analysis Team (MDAT) has begun work to produce new versions of its avian species and group models. They will be reconfigured in a format that shows them in lower resolution (10KM from 2KM) but at a higher temporal range (monthly – are currently seasonal).
- **Marine Mammals Vulnerable to Climate:** Duke/MDAT has developed the new species group Marine Mammals Vulnerable to Climate-Related Changes, with four maps to illustrate their overall vulnerability as well as sensitivity to changes in abundance, distribution and phenology.
- **Northeast Regional Fish Habitat Assessment:** A team with researchers from NOAA Fisheries, NEFMC, the MAFMC, Monmouth University and others completed a project in 2022 that developed habitat use models for commercially and ecologically important fish species across the Northeast and Mid-Atlantic continental shelf. Reps from the Mid-Atlantic and Northeast portals, RWSC, Duke and the NRHA team elected to move forward with the development of map products that fill gaps (including for state/inshore waters) for the following species: Atlantic cod, Yellowtail, Haddock, Scup, Bay anchovy, Longfin squid, Silver hake, Winter flounder, American lobster, Little skate, Bluefish, Black sea bass, Summer flounder, and Striped bass.
- **Essential Fish Habitat:** The team will investigate the availability of newer and higher-resolution products illustrating EFH and data produced through recent federal habitat assessments.
- **Sharks/Highly Migratory Species:** The team will investigate the availability of products showing great whites and other shark and highly migratory species of interest that are not reflected in the Portal's current Marine Life Library.
- **Marine Life Changes Over Time:** Duke/MDAT will explore options for the advancement of map products showing density and distribution change over time for various marine life taxa or species.

Maritime

- **2023 AIS Vessel Transit Counts:** Among the most frequently used data layers on the Portal, the AIS vessel transit count maps should be updated on an annual or semi-annual basis. The team will work with the Marine Cadastre, Northeast Portal and federal agencies to create 2023 annual and monthly maps presented with the Portal's slider/animation feature.

- **New Submarine Cable Infrastructure:** The Portal Team works with private sector developers to create maps showing the alignments of submarine telecom and power cables. New data will be added as it becomes available. The Marine Cadastre's Submarine Cables Areas service will also be updated in 2024, and the site will publish a new layer showing submarine cable landing stations.
- **USCG Proposed Studies and Areas:** The Portal Team has partnered with the Coast Guard in recent years to produce several maps showing routing measures recommended by Port Access Route Study (PARS) reports and other studies. Associated maps will be added and replaced as needed to support public outreach and analysis by users.
- **Aids to Navigation:** The Marine Cadastre's Aids to Navigation map will be replaced with a new version containing the latest points.
- **Vessel Routing Measures:** The Marine Cadastre's Routing Measures service will be updated and replace the current service on the Portal.
- **NARW Speed Zones:** Maps depicting any decisions or further recommendations from NOAA's proposed North Atlantic right whale seasonal speed zones will be added.
- **Sand Resources:** As part of the MARCO-NROC regional data-sharing initiative, options will be investigated for bolstering both portals' sand resources data with products from the BOEM MMIS or other sources.
- **Docks & Port Location Products:** The Portal's Port Facilities (by locations and commodities) layers were recently retired. The USDOT's Docks map service was identified as a viable replacement, and others will be evaluated to augment that data.

Oceanography

- **MARACOOS Oceanography:** The Portal Team and MARACOOS will convene this year to discuss new possibilities for long-term data products on the Portal based on the OceansMap's real-time data.
- **Wind Speeds:** A set of data sliders will be created showing monthly average wind speeds and directions at surface and wind turbine hub heights. The maps will be higher definition than the current NREL ones on the Portal and extend offshore approximately from Cape Cod to Cape Hatteras. They are being created using data developed through Rutgers University research for the New Jersey Board of Public Utilities.
- **Tropical Cyclone Wind Exposure:** The Marine Cadastre plans to overhaul its current map showing exposure in the North Atlantic from 1900-2016 to include more recent data and presented at an improved resolution.
- **Ocean Observing Buoys and Stations:** A map will be added from the Northeast Portal showing the locations of buoys and stations used for ocean observing along the East Coast. Constructed from MARACOOS and NERACOOS data.
- **Ocean Wave Resource Potential:** The Marine Cadastre has published a map showing mean wave power density estimates derived from measurements observed during a 51-month study period.
- **Marine Heat Waves:** Potential options will be investigated for depicting marine heat wave areas and severities at a scale useful for ocean planning.

Recreation

- **Coastal Water Trails:** In 2023, the team assembled a collection of maps showing water Trail locations throughout the Mid-Atlantic. The MARCO Portal team is now working with the Northeast Portal to update its regional water trails map, which will include new routes in Long Island.
- **SCUBA Diving Areas:** The Portal team is working with SCUBA industry stakeholders to create a map(s) showing important areas for divers off the Mid-Atlantic Coast.
- **Beach Recreation App Products:** MARCO and MARACOOS began planning work in 2023 for the development of a mobile app that will help beachgoers anticipate ocean and weather conditions and plan their trips. This process may produce map products of value for the Portal.

Renewable Energy

- **Up-to-Date Wind Areas:** The team will work with BOEM and the states to update the Portal with new and updated federal/state wind lease and planning area boundaries expeditiously to help inform the public on pending issues.
- **Project Advancement Information:** The Mid-Atlantic and Northeast Portal teams will continue their collaboration in updating or creating any layers showing the advancement of wind projects to new stages (e.g. under review, permitted, operational). This will include project envelopes and the locations of proposed or installed infrastructure including turbines, inter-array cables, export cables, export cable corridors, and substations.
- **Offshore Wind Ports:** The MACO Offshore Wind Work Group coordinated state members in gathering information regarding the sites of planned or existing ports serving the offshore wind industry in the Mid-Atlantic.

Security

- **Security Data:** The team will continue to maintain and update its security map layers as needed in consultation with the Navy/Department of Defense and Marine Cadastre. Plans are underway for the Cadastre to enact schema changes in 2024 to the Military Operating Areas, Military Ship Shock Boxes, Military Special Use Airspace, and Military Surface Grid Areas map layers based on comments from the Navy.
- **Munitions and Explosives of Concern:** The Marine Cadastre team is preparing to update its Munitions and Explosives of Concern layer to incorporate recent discoveries.
- **Military Flight Tracks and Military Training Routes:** These two new map layers are being created for the Marine Cadastre and will be examined for inclusion on the Portal.

Socioeconomic

- **Ocean Economics GDP:** The NOAA eNOW-based Ocean Economics GDP map on the Portal will be updated from 2016 to 2020 data.
- **Recreational/Coastal Tourism Economics:** The Mid-Atlantic and Northeast portal teams will explore options for expanding the theme with new maps illustrating the ocean's importance to the economy.

Water Quality

- **Acidification Monitoring Sites:** MACAN and a University of Virginia researcher gathered information for nearly 20,000 additional sites where acidification is being monitored throughout the region. The current map products on the Portal will be replaced.
- **No Discharge Zones:** An EPA map showing areas that are off-limits to marine discharge will be added.
- **Marine Debris/Balloon Litter:** The Balloon and Other Debris layers will be updated with information gathered during 2023 and 2024 beach surveys.
- **Acidification Hot Spots:** MACAN and a Stony Brook University researcher are developing spatial data depicting areas that are prone to coastal and ocean acidification events in the water.
- **Wastewater Outfalls:** The Marine Cadastre plans to update its wastewater outfall locations map to include sites that were not represented in the last version.
- **Abandoned and Derelict Vessels:** Efforts will be taken to explore the availability of spatial data related to ADVs, which can negatively impact water quality and navigation.
- **Marine Carbon Dioxide Removal Project Locations:** The availability of spatial data related to sites where there are projects underway to serve as carbon sinks will be explored.

Part II: IT Support and Application Development

Tech Support and Maintenance

The Portal's maintenance and software management needs are handled by Ecotrust, of Portland, Oregon. Ecotrust participates in the Portal Technical Team's bi-weekly calls and other meetings as necessary to keep the team up to date with project status, plan and discuss strategies, lend expertise when appropriate, and stay informed of issues identified by both the team and users. Ecotrust is on call throughout the week as the first line of defense in the event of site outages; problems with the site's Open Layers, Django and Wagtail software; or other technical issues that arise. This work includes dealing with identified priority bugs, shortcomings in the user interface or user experience for both general users and administrators, performance issues, and site uptime.

Ecotrust is also the lead for planned system upgrades and maintenance. Taking advantage of its West Coast location, the staff often handles significant system work at times that are after hours in the Mid-Atlantic, ensuring the least level of disruption to users. As the developer for the West Coast Ocean Data Portal, Ecotrust also fosters collaboration between the two teams, including the sharing of coding and best practices that can enhance each site and yield significant cost savings.

Upgraded Tools and Capabilities

An overhaul of the Portal's data management system is expected to open the door to long-contemplated changes in Marine Planner's data arrangement. Among them are the previously non-feasible option of embedding dropdowns within dropdowns – a move that could, for example, enable various fishing data collections to be moved within dropdowns representing catch types. It is also expected to pave the way for a new solution to replace the search widgets used to view the Marine Life Library species maps and Communities at Sea maps for individual ports. In concert with work taking place on the West Coast Portal, the Portal's Data Catalog system will be replaced with a more flexible and intuitive option.

The Portal Team has conducted numerous training sessions with state and federal agency staff, consultants, educators, NGOs and others in recent years and solicited the participants' input on improvements/changes they'd like to see made to the site. Team members also spend a significant amount of time presenting at conferences, responding to inquiries, and engaging stakeholders in the identification of data or functionality needs. Based on these trainings and discussions, as well as consultations with Ecotrust, we have compiled the following list of planned improvements for 2024. The first list contains items that work began on last year. It is followed by items that will also be implemented or investigated in 2024. As is the case with the data priorities in Section 1, these targets may change based on the needs that arise over the course of the year.

BEGUN IN 2023

- **Data Manager Overhaul:** This core piece impacts at least 12 other tasks, and will have large impacts on the Portal's performance, stability, and capabilities while improving and simplifying the process of data curation.
- **Migrate Data Catalog:** The Portal will leverage updates coming out of the West Coast Ocean Data Portal's work to improve its interoperability with GeoPortal, a more flexible and intuitive open source data catalog option.
- **New Ocean Story Layout Options:** Work was begun in 2023 on exploring options to support new layouts, but were put on hold until the MARCO styles are ready.
- **Label Duplication:** Work will continue to better support GIS data formats where labels on maps have been shown in unclear and duplicative ways has been an issue.
- **Easier Transfer of Layers Between Databases:** We have been exploring the limitations of the current layer transfer tool, namely associating layers with themes, sublayers/parents, or companions. All of this will work quite differently after the Data Manager Overhaul, and these issues are steering the design towards one that would greatly benefit our ability to transfer these connections as well.
- **Feature Service Overrides:** We have improved some custom cartographic support for feature services and may be able to go much further by upgrading to OpenLayers v8 (below).
- **Design Updates:** Ecotrust has been coordinating the styles handoff and an iterative protocol between its staff and 3Lane Marketing to ensure a full understanding and integration of the updated MARCO styles into the Portal.
- **Migrate to OpenLayers v8:** The Portal currently runs on the OpenLayers v6 technology stack. By upgrading to version 8 we will have new possibilities to explore related to hosting the ever-more-popular feature services and their cartography.
- **Migrate to Wagtail v5:** This is under research, but would likely require upgrading Django as well. Eventually both will be updated, but whether this is feasible under the current funding and timeline is yet to be determined, just as the potential benefits are not yet clear.
- **Password Protection for Staging & Sandbox Sites:** This capability would allow reviewers to view large datasets published offsite (for ex., full updates of the MDAT marine mammal maps on Duke or Northeast Portal development sites) on the Portal's two development sites. Currently, password-protected layers can be added one at a time with the User-Imported Layers tool.

ALSO COMING IN 2024

- **Improved Mobile Friendliness:** Upgrades and redesign work to make the site's non-Marine Planner editorial sections (e.g. blog posts, calendar items) more accessible for mobile viewers. To be done in partnership with 3Lane Marketing.

- **Shapes: KML Import, User Colors, Legend:** Additional options for the new Shapes tool, including the ability to upload KML files, change the colors of shapes, and create legends.
- **Improved Search Tool:** The Portal's current search tool logic, not updated since the site's relaunch in 2015, will be enhanced to generate more thorough results, including from the Data Catalog pages.
- **Replace MDAT/CAS Search Widget:** Develop a new solution for accessing Marine Life Library species maps and Communities at Sea ports data than the current search widget. Solutions that enable these datasets to be rolled into the Marine Life and Fishing themes may come as part of data manager overhaul outlined above.
- **View Story Button/Tag/Checkbox:** Clickable option for connecting map layers to editorial content or other features on the Portal.
- **Selected Feature/Pop-Up Window Upgrades:** Improved control over attributes displayed in pop-up windows upon clicking maps.

Part III: Data Production and Systems Administration

The Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA), Rutgers University, has been on the Portal Team since its inception, and continues to provide support for the site's operations through data development/management, IT/web services/server management, technical operations and advisory roles. The following outlines CRSSA's roles and responsibilities during 2023 and projected for the 2024 time period.

Data Production and Management

CRSSA's geographic information systems (GIS) database development and management for the Portal, can be categorized into the following: 1) in-house data production; 2) management of in-house published web services and their source GIS data and metadata documentation; 3) external/existing web service preparation for Portal integration, 4) publishing data layers to the Portal viewer and data catalog, and 5) enhanced visualization/slider.

In-House Data Production

CRSSA actively participates on the Technical Team, working in coordination with team members to develop data development actions to meet Portal goals as identified by the OMDT and approved by MARCO. When these targeted data sets are not available through existing authoritative sources or in web service format from the data originator, CRSSA has developed, processed, and published these data sets in-house in coordination with the Technical Team and data sources.

Examples of in-house data development and web service publishing activities in 2023 include Boat ramps and Coastal Water Trails Data that were compiled by the Portal in coordination with the five MARCO states. This effort to produce 17 new vetted data layers combined available GIS data by the states, other regional agencies, and the Portal digitizing additional areas using available published maps as well as air photo interpretation. Data layers are published for each state to preserve their full attribute domains. In-house GIS data production in coordination with Portal data partners include the Sea Turtle Strandings data layers for the 2000-2020 time period (Maine to Virginia) which were generated to spatial form in coordination with NOAA's Sea Turtle Stranding and Salvage Network (STSSN); the 2023 revision of the Ocean Acidification Portal layers in coordination with the Mid-Atlantic Coastal Acidification Network (MACAN) which supplied the tabular data for the Portal's GIS processing to spatial representation and production with additional symbology/cartographic updates; Marine Debris data layers in the Water Quality theme were revised with 2021 and 2022 field survey data in coordination and supplied by the Virginia Department of Environmental Quality, and the Portal continued its coordination with the U.S. Coast Guard by publishing USCG-supplied GIS data representing newly compiled Consolidated Port Approaches and International Entry, including Portal-composed metadata documentation with approval by the USCG. CRSSA will continue to publish these types of data in 2024 in coordination with Portal partners for various Portal themes and efforts.

The above geospatial datasets are developed and prepared for visualization through cartographic representation in geographic information systems software (Esri ArcGIS, ArcPro are utilized by the CRSSA team). Other production tasks include the composition and/or assembly of data layer descriptions and metadata documentation, reviewed by the source organization for completeness and presentation.

Management of In-house Published Web Services and GIS data

These in-house produced data are then published to web services utilizing ESRI's ArcServer application (and ArcGIS Online where needed) so the data can be ingested into the Portal. Web services published to the Portal server, along with their associated GIS data, are managed, maintained and updated by CRSSA. From the source data to the published services, these data are inventoried for the purpose of both an active or longer term/legacy database, as well as primarily to revise in-house published data when necessary as identified by the Technical Team. In 2024, this inventory will continue with planned data activities.

External/Existing Web Service Preparation for Integration

In addition to in-house produced and hosted data, external web services are a vital data source for the Portal. CRSSA works with the Technical Team in evaluating these services for integration and display as needed. There are a variety of external web services sources visualized on the Portal, primarily, as of 2024, from federal (e.g. NOAA and BOEM), university (e.g. Duke University), and from the Northeast Ocean Data Portal. As with in-house data production, ancillary information such as data layer descriptions, metadata documentation, and data source links are assembled.

For bulk imports of large sets of external web services (e.g. Marine Life), Ecotrust has developed codes/scripts to facilitate this import process. CRSSA and the Technical Team works with Ecotrust during this process to assist as needed. An example of previous efforts is the import of Duke University's Marine Life Library and vessel automatic identification systems (AIS) data, and subsequent updates into the Portal in recent years.

Publishing Data Layers to the Portal Viewer and Data Catalog

For both in-house and external web services to be integrated into the Portal viewer and data catalog, the data layers must be prepared for visualization on the Portal platform. As of 2024, CRSSA is primarily responsible for this role utilizing the web interface administrative tool developed and actively maintained by Ecotrust. Entries to be populated include the web service links, data descriptions, source/originator links, and other associated text. All work is currently performed on the Portal 'Staging' or 'Sandbox' working sites for data review before being pushed to the public Portal application. Staging is the primary and final location for data review. Once approved, these data and metadata appear in the Portal viewer and data catalog, respectively.

Sliders and Animations

The Portal's slider and animation tool is a feature that enables the user to easily click, follow, activate, and control layers in the Viewer's Active tab. The team will continue to apply this capability to temporal datasets in 2024, including the AIS 2023 Monthly Transit Count maps for each vessel class (All Vessels, Cargo, Passenger, Tanker, Tug/Tow, Pleasure Craft/Sailing,

Fishing, and Other). CRSSA activities in 2023 included the creation of the AIS 2022 Monthly Transit Counts for all vessel classes.

Systems Administration/Server

CRSSA maintains an ESRI ArcGIS Server on the Rutgers University network for in-house published web services and GIS data. The web services are published using ArcGIS Server's map service capabilities, which allows maps, features, and attribute data to be available inside many types of client applications.

The industry trend continues to make GIS data available as feature services, which allow for editing of GIS data and the ability to manipulate layer symbology and attributes. Some federal and state agencies have begun to publish streaming data in this format, including the NOAA/BOEM Marine Cadastre's efforts to transition from map services to feature services. To utilize those data, in 2021, Ecotrust added the capability for the Portal to ingest feature services for display and use. In 2022 and 2023, the Portal was able to display various new Marine Cadastre feature services; there still remains some work in coordination with the Marine Cadastre to provide feedback about services display performance, issues, and symbology interpretation in the Portal viewer. This is an on-going process documented by CRSSA for Ecotrust, and is communicated with the Marine Cadastre in the Mid-Atlantic/Northeast/Marine Cadastre coordination meetings. This work will continue in 2024 where applicable.

CRSSA collaborates with Ecotrust to continually improve the capabilities of both the front- and back-end of the Portal application. For their part, Ecotrust actively responds and acts to improve the Portal's administrative tool under their scope of work for the Portal Project, as well as other customized and rapid tool fixes as needed.

Coordination/Planning Calls

Much of the work described throughout this document is coordinated through bi-weekly Portal Technical Team calls, as well as regular interaction via email and calls as needed. The team also helps MARCO's Ocean Mapping Data Team (OMDT) chair coordinate quarterly calls with state and federal partner members of the OMDT. Members of the Portal Team also hold a monthly call with their counterparts from the Northeast Portal and the Marine Cadastre to discuss matters of shared interest. Portal team members collaborate in producing the agendas, notes and minutes for the Tech Team and OMDT calls, and expect to continue these interactions in 2024.

Part IV: Communications and Outreach

Outlook for 2024: In the fall, MARCO contracted [3Lane Marketing](#) to conduct a full redesign of the MARCO, MACAN and Portal websites. After weighing the pros and cons of multiple options, 3Lane and Ecotrust determined the most cost-effective and secure path forward was for the Portal to remain on its current Wagtail content management system, but be redesigned to improve its overall look and remain consistent with the branding of the MARCO site. In the months ahead, Ecotrust and the Portal's communications lead will work with 3Lane to migrate all front-end content to new templates and take advantage of any novel design possibilities that arise in the process. With the redesign complete, Ecotrust will be able to move ahead with long-awaited upgrades to the Ocean Stories section that will offer new ways for viewing and interacting with the map content.

The Portal Team also hopes to embark on the first round of in-person trainings for state agency staffs since before the COVID-19 pandemic. Coordinating with MARCO members, arrangements will be made for team members to visit sites in the states and provide comprehensive instruction on the Portal's data and tools. In addition, trainings will be provided for Tribal entities throughout the Mid-Atlantic as part of a MARCO outreach effort. The feedback generated through these trainings will no doubt play a valuable role in guiding improvements and data priorities in future work plans. The following is an overview of communications and engagement activities planned on behalf of the Portal for 2024.

Trainings, Webinars and Demonstrations

The Portal's training sessions have been effective both in building a community of practitioners and collecting feedback/observations that help the team plan and prioritize improvements. The team will continue to accommodate these requests, whether online or in person, as time, resources and safety considerations permit.

Portal Team members will work with the states, the Ocean Mapping Data Team (OMDT), federal agency partners, and regional partners such as MARACOOS to identify opportunities to show the Portal at conferences and events. The team will seek to have a presence at state or agency meetings related to ongoing management or regulatory actions, especially those that are using the Portal. Finally, opportunities will be sought to place team members on panels that can reach strategically important new user groups and enter the Portal for notable awards.

The Portal's "How Tuesday" series and topical webinars with partners have also been successful vehicles for instructing practitioners and engaging new users. These sessions can offer beginner-focused overviews of the site or specialized sessions about new features and products geared toward industry sectors, governments, and working groups. Recordings are posted to the Webinars page, Portal Blog and in some cases, the How to Use the Portal's Tools page, where they serve as educational resources for those who couldn't attend.

External engagement sessions planned for 2024 include, but are not limited to:

- Presentation and table at New Jersey Academic Alliance for Offshore Wind Energy conference (Jan. 12)

- Training for Monmouth U. coastal zone management students (Feb. 1)
- Training for Virginia Ocean Plan team and agency staff (TBD)
- State-by-state staff trainings TBD
- How Tuesday webinar with MACAN guest presenters on acidification data (March 19)
- Tribal training sessions in conjunction with MARCO outreach
- New York Aquarium's Youth Conservation Summit (April 6)
- Mid-Atlantic Ocean Forum (May 14-16)
- N.J. Sea Grant Ocean Fun Days (Sandy Hook, May 19)
- Delaware Coast Day (September)
- How Tuesday Intro to the Portal
- How Tuesday for fishing data (upon release of fishing footprint and CAS data refresh)

Portal Blog

The News page (portal.midatlanticocean.org/news/), commonly known as the “Portal blog,” is a key tool for keeping audiences engaged and informed. Content produced in this section also significantly improves the site’s overall search engine visibility. As a matter of practice, all significant data additions, new/improved tools or other important developments are promptly reported in this section. The Portal’s communications lead will take advantage of any new publishing tools and design options for these pages that become available through the site redesign process.

Typical topics include announcements and instructional guidance for new data and tools; MARCO news with Portal implications; a dedicated page with links to press releases from partner agencies (states, NOAA, BOEM, et al) related to ocean planning; recordings of How Tuesday webinars; links to news articles about Portal; stakeholder profiles and other articles relevant to audience.

Ocean Stories

Part story map platform and part digital magazine, the Ocean Stories section is a unique public outreach tool for the Portal. The stories and their signature scrolling data map feature have been effective for reaching non-traditional users, such as K-12 students and professionals in the industries that are profiled.

The team will pursue story topics that introduce readers to new ocean users and industry sectors, highlight new data products, promote case studies showing people who have used the Portal to solve problems or aid decisions, and seek unique story angles that can provide human dimensions to map data. Stories that may be produced in 2024 include, but are not limited to:

- **Stranding Center Profile:** An introduction to some of the people, work and issues behind the new sea turtle and marine mammal strandings data on the Portal.
- **Hudson Canyon Feature:** A team member will ride along on a party boat trip to one of the East Coast’s legendary fishing spots, interviewing the captain and passengers.
- **Historic Tribes of the Mid-Atlantic:** This story would provide a historic tour of the peoples who once lived in the coastal areas of the MARCO states. Info/interviews to be gathered during MARCO’s planned outreach to state and federally recognized Tribes.

- **Mid-Atlantic Offshore Wind Update:** The Portal's existing state-by-state summary of offshore wind lease areas continues to attract traffic. This story will be updated to reflect the most current plans and map data.

Older Ocean Stories will be maintained to ensure layers that have been replaced remain functional and to edit outdated information where appropriate.

Agency Actions Section

The Portal debuted a [Current Agency Actions & Public Comment Opportunities page](#) a year ago listing informational resources for current and recent government actions related to ocean planning in the region. The page is meant to offer a snapshot of activities that are most closely connected to MARCO's priorities and work or are likely to be of interest to the Portal's community of users. Information shared include Federal Register notices, public comment due dates, press releases and, when available, relevant maps on the Portal.

The Portal Team will update this section regularly with the latest developments on topics like offshore wind, Coast Guard studies and Army Corps of Engineers projects. With an eye toward growing this service, MARCO/MACO member agencies will be encouraged to provide material that they'd like to see publicized. The section format will continue to evolve based on user and stakeholder input.

Newsletters, E-List Blasts and Twitter

The Portal's e-mail list is maintained within MARCO's Constant Contact account. The team produces quarterly electronic newsletters to registered users and other subscribers. These email blasts are one of the Portal's most effective means for sharing details about upcoming webinars, links to blog posts about new data, MARCO events and more. The communications lead will update the e-list, adding new registered Portal users from Django server and those who provide contact information (via sign-up sheets at Portal kiosks, etc.) on a rolling basis.

The Portal's Twitter account is used to promote new features, upcoming webinars, events with Portal Team presence and respond to questions from users. The account is monitored daily and used strategically to tie messages to larger conversations through the use of trending hashtags.

Page Improvements and Maintenance

In addition to the activities outlined above, the communications lead will conduct general maintenance of the site's editorial content and pages via the Wagtail CMS. Typical tasks include:

- Regular additions to the Calendar page with Portal/MARCO events and other events relevant to the user community.
- Keep informational pages such as the Map Resources and Data Resources pages up to date.

- Periodically add content to Case Studies page, including fact sheets, Ocean Stories, etc. that demonstrate how the Portal has been used to assist work and solve problems.
- Evaluate needs for new pages and site organizational changes.

Portal Instructional Resources

A frequent piece of feedback from in-person training sessions is how useful the [How to use the Portal's tools](#) page is for those who need a quick primer on performing a task or locating data. This page must be updated periodically with new instructional content about the latest data and tools and to account for old assets that become outdated.

The team will produce videos, written guidance, diagrams, fact sheets, and other appropriate resources geared toward instructing people to use the portal. An emphasis will be placed and making these materials simple enough for any user to follow.

Other Miscellaneous Tasks

- Fielding questions from the public submitted through the Portal's online form and email account, portal@midatlanticocean.org.
- Troubleshooting calls and share-screen sessions with users as needed.
- Development and editing of content on the MARCO website related to the Portal and ocean planning.
- Staffing Portal kiosks at MARCO events and other conferences.

Analytics

The Portal's traffic on Google Analytics will be monitored for trends and spikes in use that may inform the team's work. The installation of Google Analytics 4 in January 2023 provided a window to new insights on how the Portal was being used, such as which basemaps, tool buttons and tabs were being clicked most. Below were the most activated layers of the year.

Top Map Layers of 2023

Activations from January 1-November 28, 2023

(Source: Google Analytics)

1. BOEM Active Renewable Energy Leases
2. Artificial Reefs
3. BOEM Wind Planning Areas
4. BOEM Central Atlantic Draft Wind Energy Areas
5. Wrecks and Obstructions
6. Electric Transmission Lines: Voltage
7. Recent Telecom Cables (2016-)
8. Submarine Cable Areas
9. Offshore Wind - Proposed Export Cable Corridors
10. Offshore Wind - Proposed Export Cable Locations
11. Essential Fish Habitats
12. Offshore Wind Energy Technology Zones
13. Navigation Channels
14. Danger Zones & Restricted Areas
15. Offshore Wind - Proposed Project Inter-array Cables
16. Party/Charter 2011-2015
17. BOEM Central Atlantic Call for Information and Nominations Area 5/2022
18. Artificial Reefs: New York Proposed Expansions and New Sites
19. Historic Native Terrestrial Territories (Not Reservation Boundaries)
20. Deep-Sea Corals and Sponges (Observed)
21. All Vessel Transit Counts (2021)
22. Bathymetric Contours
23. Routing Measures
24. Regional Bathymetry
25. Offshore Wind - Proposed Turbine Locations
26. Offshore Wind - Proposed Substations
27. Benthic Habitats (North)
28. All VMS Vessels 2015-2019
29. OCS-A 0512 Empire Offshore Wind LLC
30. Anchorage Areas
31. Coastal Energy Facilities
32. All Cetaceans: Abundance
33. OCS-A 0483 Virginia Electric and Power Company
34. OCS-A 0490 US Wind Inc.
35. Electric Substations: Max Voltage
36. BOEM Central Atlantic Final Wind Energy Areas 7/2023
37. Anchorage Areas - Lower Chesapeake Bay Anchorages (6/29/2020)
38. Anchorage Areas – Cape Fear River Approach, North Carolina (7/21/2022)
39. Seabed Forms
40. Benthic Habitats (South)

APPENDIX I: MARCO-NROC RODSI Work Plan

Work Plan for the FY23 Regional Ocean Partnership (ROP) Regional Ocean Data Sharing Initiative

Northeast Regional Ocean Council (NROC) Mid-Atlantic Regional Council on the Ocean (MARCO)

October 2023

Introduction

The Mid-Atlantic Regional Council on the Ocean (MARCO) and the Northeast Regional Ocean Council (NROC) are using the FY23 Regional Ocean Partnership (ROP) Regional Data Sharing (RDS) funds to collaborate on the development of new and updated data products for the [Northeast Ocean Data Portal](#) and the [MARCO/Mid-Atlantic Ocean Data Portal](#). RDS funding will be used in coordination with other funding sources to support core capacity for the Portals, including outreach and engagement, data development, data integration, and data dissemination. Most of the effort under this funding source will be focused on supporting project management, outreach to users and stakeholders, updates to the Portals' core datasets, and the integration of new data and products that are developed using other funding sources. While there is some flexibility for supporting a limited number of new data development tasks using this source of funding, MARCO and NROC will be supporting larger and newer data projects using other funding sources. The maintenance of the Portals' information technology and application development will also be funded via other sources. As in previous years, the MARCO and NROC teams will coordinate and share responsibilities for data development and outreach as most datasets span both regions. Additionally, the use of FY23 funding will build on the progress made by the Portal teams during previous funding years.

Project Approach

MARCO and NROC expect to use the FY23 funding over a period that started in July 2023 and ends in October 2024. From July 2022 through October 21, 2024, MARCO and NROC staff will identify data priorities and potential methods via meetings with and by reviewing past proceedings of the MARCO Ocean Mapping and Data Team (OMDT), the MARCO's Management Board and Committees, NROC's Committees (Ocean Planning Committee, Ocean and Coastal Ecosystem Health Committee, Coastal Hazards Resilience Committee, and Executive Committee), expert work groups that advise on portal data development, and other MARCO and NROC subcommittees and work groups. In addition, staff reviewed previous work plans and data maintenance schedules and have begun developing comprehensive work plans for each Portal for 2024. The annual Portal work plans include all the data updates, new data product development, functionality enhancements, and communication and outreach that will occur during the year with existing funding. The work plans will also include other priority data product development and functionality enhancements that could be achieved with additional funding.

FY23 RDS Work Plan and First Quarterly Progress Report

Task	Potential partners, in addition to MARCO and NROC	New product development or integration of data from another program	Additional funding necessary or funding from other sources?	Status
1. Project Management				
A. Participate in kickoff meeting with NOAA				Complete
B. Develop work plan				Complete
C. Develop subcontracts as needed				In progress
D. Submit monthly and quarterly progress reports				Ongoing
E. Coordinate with NOAA and the regional data sharing network				Ongoing
F. Convene and manage committees, subcommittees, and work groups to inform data development				Ongoing
2. Commercial Fishing				
A. Update VMS data products with products from 2020-2023	RODA, NMFS, NEFMC, MAFMC, and NROC/MARCO commercial fishing work groups	New data development	No	
B. VTR-based data products a. Complete the integration of NMFS fishing footprint data and work with NMFS to update products, if possible	RODA, NMFS, NEFMC, MAFMC, and NROC/MARCO commercial fishing work groups	Mostly data integration, but these are significant data integration projects	Also supported by IJA funding; additional funding potentially necessary	a: Fishing footprints under final review by NMFS before posting live b: Scoping initiated

b. Revise and update Communities at Sea (CAS) data				
C. Maintain fishery management areas including proposed areas	NMFS	Integration of data from NMFS	No	Ongoing
D. Determine and implement next steps for developing data and maps of charter/party fishing	RODA, NMFS, and NROC/MARCO commercial fishing work groups	New data development	TBD	Final report from previous work provides several potential next steps that require additional scoping
E. Reorganize data by fishery (instead of by data type)	RODA, NMFS, and NROC/MARCO commercial fishing work groups	No	Also supported by IJA funding; additional funding potentially necessary	

3. Recreation and Ocean Conservation

A. Complete SCUBA and diving maps with industry input	Recreational dive operators	New product development for MARCO; NROC will update its existing product	No	Currently updating base datasets that would be used to inform diver input; MARCO has developed a list of operators and intends to begin outreach in late fall after the diving season has concluded
B. Identify options for updating the recreational use datasets and implement them in coordination with other projects and funding sources	Charter and recreational boating industry associations	New product development – many potential methods	Additional funding may be required for more in-depth methods	
C. Update coastal recreation area data (parks, reserves, water trails, boat launches)	NPS, States, TNC, USGS	New product development for MARCO; Update to existing products for NROC	No	Data from NOAA, USGS and TNC acquired; developing draft options for portraying the data
D. Determine the need for data, maps, and assessments of recreational and coastal tourism economics	States	TBD	TBD	

E.	MARCO – Maintain Ocean Conservation Theme	States, NOAA, NPS	Maintain newly released ocean conservation theme incorporating datasets from other themes	No	Initial MARCO Ocean Conservation theme released in September
4. Maritime					
A.	Update vessel traffic data using AIS	USCG, NOAA, DOT, Maritime work groups	Integrate data from MC or others	No	Ongoing - waiting on the latest data from NOAA/USCG
B.	Maintain and update USCG Proposed Areas and Studies	USCG	Integrate data from USCG NAVCEN	No	Ongoing
C.	Update data on port facilities and offshore wind ports	DOT, States, Ports	Yes	TBD	MARCO is currently developing a map of offshore wind ports
D.	Identify other port and maritime data needs via outreach	Maritime operator groups and safety committees	TBD	TBD	
5. Sand Resources					
A.	Integrate updates from BOEM MMIS	BOEM	Integrate data from BOEM	No	
B.	Identify sand and disposal placement areas	BOEM, USACE, States	TBD	TBD	
C.	Determine potential to model or compile a map of sand resources from seafloor data/products	BOEM, USGS, NOAA, States	New product development	TBD	
D.	Develop maps of projects requiring sand resources	USACE, NOAA, States	New product development	TBD	
6. Tribes and Traditional Knowledge					
A.	Identify tribal data priorities and develop products	Tribes	TBD	TBD	
B.	Support the development of and integrate data/products about submerged archeological resources	Tribes, States, BOEM, NOAA, offshore wind developers, USGS, others	Likely	TBD; NROC will use IJA funding for significant projects	NROC Submerged Archaeological Resources work group is identifying projects and data needs

C. Conduct trainings and provide support for interested Tribes	Tribes	TBD	Will leverage IJJA funds	
7. Marine Life and Habitat				
A. Update sea turtle stranding data	NOAA	New product development	No	Draft maps developed and under review by NOAA
B. Integrate new products from the Marine Life Data Team <ul style="list-style-type: none"> a. Marine mammal models from Duke b. Sea turtles from Duke c. New/updated avian models from BOEM/FWS/NOAA d. NHRA fish data e. Other products – change over time; species at different geographic scales, others as identified 	MARCO/NROC marine life work groups, NEFMC, MAFMC	Integration of large datasets into the Portals	Datasets developed via IJJA funding	Marine mammal and sea turtle model outputs integrated into the Portals; Avian data being staged for release
C. Support and advance the integration of climate vulnerability assessments with dynamic species distribution models	WHOI, SDSU, NMFS	TBD	TBD	NROC is supporting a workshop in November 2023 to advance this topic
D. Advance the integration of habitat assessments into the Portals	States, USGS, BOEM, NOAA	TBD	TBD	NROC is integrating Seascapes products into the Portal
E. Support RWSC research and monitoring	RWSC	TBD	TBD	Ongoing
8. Seafloor				
A. Support efforts to advance sharing and availability of high-resolution seafloor data	RWSC, offshore wind developers and contractors	TBD	TBD	NROC has developed a pilot application for storing seafloor data and products from developers using other sources of funding and is determining next steps
B. Update bathymetric data	NOAA	TBD	TBD	
9. Agency Actions and Public Comment				
A. Provide maps and other information about	BOEM, USACE, USCG, EPA, States	Ongoing updates and	No	Ongoing

proposed projects, agency actions, or management alternatives that are noticed via the <i>Federal Register</i> , USACE public notices, and other agency announcements		improvements of NROC and MARCO webpages and data		
B. Maintain maps, data, and webpages tracking offshore wind planning, leasing, and development	BOEM	Ongoing updates and improvements of NROC and MARCO webpages and data	No	Ongoing
10. Emerging Data Priorities				
A. Identify and support emerging data priorities for other topics (e.g. ocean acidification, blue carbon, energy transmission, offshore wind, aquaculture, etc.)	NROC, MARCO, work groups, portal users	TBD	TBD	