# 2019 Work Plan

DECEMBER 2018

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# Introduction

This document provides an overview of anticipated work to be conducted by members of the Mid-Atlantic Ocean Data Portal development team (Portal Team) in 2019 and reflects data priorities and expected updates and maintenance schedules that will likely need to be continued after 2019. It covers a broad range of priorities ranging from map data additions to functional improvements to stakeholder engagement activities.

President Trump's June 2018 [Executive Order on Ocean Policy](#) and the related guidance to federal agencies described the federal government's commitment to improving the distribution of federal data and to collaborating with regional ocean partnerships and their related data portal projects. It is therefore anticipated that in 2019, the Portal Team will work closer than ever with the agencies that maintain federal data assets, including the Marine Cadastre (MC) project that is managed by BOEM and NOAA.

It is important to note that while this document provides a roadmap for 2019 based on the best information available today, a project of this kind requires ample flexibility to account for unforeseen developments. For example, new directives from Washington, D.C., or regional data requests with high urgency can alter schedules and the team's work flow. The team has limited capacity, but will work to meet these challenges to the best of its ability.

The Portal Team currently consists of:

- John Bognar, Rutgers University Center for Remote Sensing and Spatial Analysis
- Chris Bruce, The Nature Conservancy
- Ryan Hodges, Ecotrust (developer)
- Richard Lathrop, Rutgers University Center for Remote Sensing and Spatial Analysis
- Tony MacDonald, Monmouth University Urban Coast Institute
- Nick Napoli, MARCO (Portal Team lead)
- Jim Trimble, Rutgers University Center for Remote Sensing and Spatial Analysis
- Karl Vilacoba, Monmouth University Urban Coast Institute (project manager and communications lead)
- Jennifer Whytlaw, Rutgers University Edward J. Bloustein School of Planning and Public Policy

# Part I
# Data Priorities

<u>Outlook for 2019</u>: Now with roughly 4,000 map data layers, the Portal has matured into a tool that is regularly being used to aid ocean planning and management decisions. Last year, the team's data development work was focused heavily on the completion of the new Communities at Sea fishing maps and updated Marine Life products, which together account for 95% of the site's map layers.

This year, the team will refocus on improving other data products that require updates, as well as filling important gaps that have been identified through user input. Progress will also be made on applying the Portal's new animation and toggle features to several sequential datasets, such as vessel transit maps (via the Automated Identification System – AIS), the monthly marine mammal maps, and 20 years' worth of commercial fishing VTR maps. At the same time, work will commence on some ambitious new data products that will likely debut in 2020 or beyond.

Below is an overview of planned data additions, updates and retirements in the year ahead. "External Dependencies" 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.

<table>
<tr><td colspan="4"><strong>2019 DATA PRIORITIES AT A GLANCE</strong></td></tr>
<tr><th>Theme</th><th>Layers</th><th>External Dependencies</th><th>Update Frequency</th></tr>
<tr>
<td><strong>Administrative</strong></td>
<td>1. OCS Lease Blocks update<br>2. Federal Agency boundaries</td>
<td>1. MC service (phase I); others TBD (phase II)<br>2. MC/BOEM/others TBD</td>
<td>1. Automatic update via BOEM services<br>2. Automatic via MC services</td>
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<tr>
<td><strong>Fishing</strong></td>
<td>1. VMS<br>2. Communities at Sea (CAS)<br>3. CAS animations/annual by ports data<br>4. Artificial Reefs update<br>5. Management areas update<br>6. Updated charter/party boat data</td>
<td>1. NOAA/NMFS<br>2. NOAA/NMFS<br>3. None, if 2015 or earlier<br>4. State data sources and/or others TBD<br>5. NOAA/NMFS<br>6. NOAA/NMFS</td>
<td>1. Preferably annually; at least very two years<br>2. 3-5 years<br>3. N/A<br>4.1-2 years</td>
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|  | | | |
|---|---|---|---|
|  | 7. Other fisheries analyses – as identified through stakeholder and regional input | 7. Likely NOAA/NMFS; possibly state fishery agencies and MAFMC | 5. As designations change<br>6. 3-5 years<br>7. TBD |
| **Marine Life** | 1. Fish distribution products<br>2. Fish Shifting species products to be determined during the TNC/Rutgers contract effort<br>3. Northeast Regional Fish Habitat Assessment<br>4. Marine Life sliders/animations<br>5. Sea turtle data<br>6. Continental shelf coral data<br>7. Seafloor habitat data<br>8. Marine bird distribution products<br>9. Marine mammal distribution products | 1. NOAA/NMFS – NEFSC<br>2. NOAA/NMFS – NEFSC<br>3. Various data providers<br>4. Various data providers<br>3. NOAA/Monmouth/ Regional steering committee effort<br>4. None<br>5-7 Research from federal partners needed<br>8-9 Duke/MDAT | 1. 3-5 years<br>2. 3-5 years<br>3. TBD<br>4. N/A<br>5. 3-5 years<br>6. 3-5 years<br>7. 3-5 years<br>8. 3-5 years<br>9. 3-5 years |
| **Maritime** | 1. Potential federal sand borrow sites<br>2. New submarine cable infrastructure<br>3. More robust shipwreck data<br>4. Offshore discharge flow update<br>5. AIS annual updates<br>6. USCG Safety & Security Areas | 1. BOEM<br>2. Information and signoff from developers<br>3. MC/NOAA/others TBD<br>4. EPA/Others TBD<br>5. USCG, MC<br>6. USCG/Others TBD | 1. TBD per BOEM<br>2. 1-2 years<br>3. TBD<br>4. 1-2 years<br>5. Annually<br>6. 1-2 years |
| **Oceanography** | 1. Updated ocean acidification data<br>2. Physical oceanography layers - currents, temperatures<br>3. Fronts/NPP animations/sliders | 1. MACAN/EPA<br>2. Stakeholder feedback/decision on best options; MARACOOS<br>3. None | 1. Periodic updates to current data throughout year; additional maps TBD<br>2. 3-5 years<br>3. 3-5 years |
| **Recreation** | 1. Evaluation of new data options for a variety of recreational activities | 1. TBD | 1. TBD |
| **Renewable Energy** | 1. Updated federal and state offshore wind lease and wind energy area boundaries | 1. BOEM/MC and state partners | 1. As areas change |
| **Security** | 1. Maintenance of existing layers and additions in consultation with Navy | 1. Navy | 1. As areas change; reviewed at least every 3-5 years |

| | | | |
|---|---|---|---|
| **Socioeconomic** | 1. Mid-Atlantic economy data maps based on RCRG/Colgan report | 1. None | 1. 3 years |
| **Human Use Data Synthesis** | 1. Explore feasibility of refreshing outdated maps | 1. None | 1. At least every 3 years if updated |

## Administrative

- **OCS Lease Blocks**: The Portal's current OCS Lease Blocks layer is programmed to provide users a pop-up that summarizes many other datasets when they click the map – for example, distance to ship lanes, average wind speeds, sea bed types, etc. This feature was designed when the layer was used closely with the now retired wind energy siting tool. Since the data does not automatically update, much of the information provided upon a click is outdated. In the short run, the existing layer will be replaced by the simple lease blocks map available from the Marine Cadastre. In a second phase, the Portal Team will examine options for revitalizing its own layer to show more current data.
- **Federal agency boundaries**: Options will be considered for additional boundary maps, such as EPA region, fishery management council jurisdictions, USCG districts, USACE districts, and others. Many of these are currently available on MC.

## Fishing

- **Vessel Monitoring System**: The most current VMS fishing layers summarize activity for a two-year period running from 2015 through 2016. In early 2019, work will focus on adding products reflecting fishing activity in the 2017-18 timeframe.
- **Communities at Sea**: The Portal's Vessel Trip Reporting (VTR) data, or Communities at Sea maps, show areas with the highest concentrations of fishing activity by gear type (including by individual ports) for several time intervals. This data should be updated every 3-5 years.
- **Communities at Sea Animations**: With the completion of a time slider tool, work would focus on applying the capability to the CAS data to show changes over time for individual ports. Users would be able to compare how fishing by gear type has evolved from the 1996-2000 period through 2011-15.
- **Artificial Reefs**: This layer was created a few years ago based on data provided by the states. The team will work with the states to verify whether the map is still accurate and make any necessary changes, while also consulting MC data.

- **Management areas update**: The team will consult NMFS regional office, fishery management councils, and others TBD on whether the current layers are up to date and edit them as needed.
- **Charter/Party Boat Data**: The current Recreational Fishing map, consistently among the Portal's top 20 most activated, summarizes data from 2000-2009. The team will investigate options for offering more current data, with a likely outcome the creation of a VTR-based map that matches the Communities at Sea products.

## Marine Life

- **Fish Observed Biomass Products:** The Portal will be updated in early 2019 with maps showing the observed biomass of fish species caught in NOAA's Northeast Fisheries Science Center trawl survey. This will include products showing the observed biomass in each of the spring and fall surveys.
- **Fish Shifting Species**: Virginia has contracted The Nature Conservancy, with longtime Portal Team member Chris Bruce, to work with Rutgers University's Malin Pinsky to develop a set of maps that indicate the habitat shifts of fish in the Mid-Atlantic and Northeast.
- **Northeast Regional Fish Habitat Assessment**: NOAA and Monmouth University will commence work this year on a project that will create fish habitat maps for the Mid-Atlantic and Northeast.
- **Sea Turtle Data**: The current Sea Turtle map, consistently among the Portal's top 20 most activated, is a holdover from the earliest incarnation of the Portal that is displayed in large, low-resolution squares and represents old data. The team will investigate options for offering a more rich and current map.
- **Continental Shelf Corals**: Preliminary discussions took place between NOAA and the regional portals last year about the creation of improved cold water coral map products. The Portal Team will continue to work with federal partners to advance that effort and incorporate any products into Marine Planner.
- **Seafloor Habitat**: There is a need to improve upon the Portal's current Benthic Habitats (North and Sound) layers, which were developed by TNC in 2010 and contain separate color schemes and non-user friendly PDF legends.
- **Marine Bird/Marine Mammal Distribution Products**: These datasets produced by the Marine Life Data and Analysis Team (MDAT) cover long time periods, but must be updated on an approximately 3-5 year basis to ensure their accuracy.

## Maritime

- **Sand Borrow Sites**: BOEM just released new data showing areas where the sediment composition offered potential for future sand borrow areas. These data will be incorporated into the Portal in late 2018/early 2019.

- **Submarine Cables**: The Portal will continue to work with private developers and others to place maps showing the locations of new submarine cables in Marine Planner. There are currently multiple new projects underway or under discussion as telecom companies seek to improve bandwidth between the U.S. and overseas.
- **Shipwreck Data**: A frequent request from the public has been to add better maps delineating the locations of offshore wrecks. The Portal currently contains one related layer, Shipwreck Density. The team is currently exploring options for improving this data, including adding the Wrecks and Obstructions layer from the Marine Cadastre and maintaining the existing density map as a companion layer.
- **Offshore Discharge Flow**: This map shows locations where waste water from treatment plants is discharged offshore. The current map was created by CRSSA in 2012 and may require updates. The team will confer with the EPA on the accuracy of the current data and edit as needed.
- **AIS**: Consistently among the most frequently used data layers on the Portal, the AIS vessel tracking maps should be updated on an annual basis. In 2018, the available AIS maps were expanded from shipping and passenger categories to include fishing vessels, pleasure craft/sailing vessels and others. The team will work with the NE, MC, and the federal agencies to ensure AIS maps are regularly updated and will continue exploring means for enhancing the Portal's AIS library to include monthly maps, new vessel types and the application of the new slider/animation feature to available maps.
- **Safety & Security Areas**: The Coast Guard has expressed interest in seeing a new map showing maritime Safety & Security areas incorporated in the Portal. The Portal Team will work with USCG to determine best options for developing and maintaining this map.

## Oceanography

- **Fronts and NPP**: The Portal now houses a collection of seasonal Fronts Probability and Net Primary Productivity maps spanning from 2010 through 2018. The slider/animation tools will be applied to these maps to provide a glimpse at how these processes change over time.
- **Acidification Data**: The team will work with MACAN and the EPA as they continue to develop map data related to coastal and ocean acidification in the Mid-Atlantic.
- **Physical Oceanography**: The team will conclude its examination of currents and temperature data options and publish maps in 2019. The team will also evaluate additional data types that are available, including Mid-Atlantic Sea Floor Stress and Sediment Mobility maps developed by USGS.

## Recreation

- **Recreational Data**: A priority for the Portal remains improving upon the recreational data currently available, including its currently thin and old collection of recreational boating and fishing maps. The team will explore what data options may be readily

available and consider whether a crowdsource app pilot project being led by Rutgers or other efforts offers promise at a regional level. Different methodologies may need to be considered on an individual activity level basis, including different approaches for boating, fishing, whale watching, diving, paddling, and beach-related recreation.

## Renewable Energy

- **Wind Areas:** The team will work with BOEM and the states to update the Portal with new federal/state wind area zones expeditiously to help inform the public on pending issues.

## 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 MC.

## Socioeconomic

- **Mid-Atlantic Economy:** MARCO concluded a NOAA-funded study of how factors like climate change, sea level rise and ocean acidification may impact the Mid-Atlantic economy in 2018. Upon completion, a consultant on the project furnished the Portal team with raw data that can be used to produce map products. The team will work with MARCO to identify a group of map layers that would be most useful and incorporate them into Marine Planner.

## Human Use Data Synthesis

- **HUDS**: The HUDS products were created primarily to aid with drafting the Mid-Atlantic Ocean Action Plan in 2016. The maps summarized existing data by theme and type on the Portal at that moment (for example, the total use intensity of all fishing activity). However, the maps are not automatically updated and therefore fell significantly out of date. As a result, the theme was recently taken offline. The team will explore the availability of funding for and stakeholder interest in refreshing the maps to reflect the latest data.

# 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 regularly participates in 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 2, Django and Wagtail software; or issues with the server it is on. 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 these least level of disruption to users. In the year ahead, Ecotrust and the Portal Team will also work together to maintain the Mid-Atlantic Ocean Data Portal Management Guide, which serves as the manual for making changes and additions to the Portal through Wagtail and Django.

## Upgraded Tools and Capabilities

In the fall of 2017, members of the Portal Team visited the five Mid-Atlantic states to deliver in-person training to agency staffs and solicit input on what kinds of improvements and changes they'd like to see made to the site. The feedback was summarized in a 2018 report that contained a list of frequently mentioned upgrades, which included data, site design and new tools/capabilities.  Portal team members also spend a significant amount of time presenting or hosting booths at conferences, responding to inquiries, and engaging stakeholders in the identification of data or functionality needs.

Findings from the state trainings in 2017 and continued discussions with portal users are the catalyst for significant improvements, including the introduction of a new homepage that includes a carousel and capsules linking to important content; a simplified navigation and the reorganization of pages; changes to the appearance of specific maps and edits to their metadata, descriptions, etc.; and tool upgrades such as expanding the bookmarks to include a notes field.

Feedback from users will continue to drive application development and changes to the site structure in the year ahead, as the team continues progress on high-ranking requests. The

developer will also make key adjustments to the functionality of the front and back end that help the team complete its work. Below is a sample of the tasks that will proceed this year.

## Continued Development of Animation and Toggling Tools

Feedback from the state agencies and other stakeholders highlighted the need to upgrade the Portal with a feature that allows users to easily cycle through a series of maps that depict data at different time intervals. This enhancement will provide the user with the capability to automatically advance through the layers as an animation or to toggle between them.

Beta versions of the toggle and animation tools were successfully tested and applied to the AIS data in 2018. In the year ahead, the developer will continue to refine this capability and work with the team to apply it to additional datasets. Those may include:

- Annual and/or Monthly AIS products
- Commercial Fishing VMS
- Commercial Fishing VTR
- Communities at Sea (individual ports)
- Fronts Probability
- Net Primary Productivity
- Marine Life – Avian species
- Marine Life – Marine Mammal species

## Comprehensive Bookmarking Capabilities

Another frequent request from users is to upgrade the current bookmark feature on the Mid-Atlantic Portal. Currently, the bookmarking feature retains the placement of the map in the map window, the zoom level, a name for the bookmarked map, and a user provided description of the bookmarked map. However, the bookmarking feature currently only retains the data layers that are served by the Mid-Atlantic Portal.

This enhancement will allow for additional data layers that are not served by the Mid-Atlantic Portal or are produced by a query to be retained in the bookmarked map. This includes both layers that have been added via the Session Based ArcRest Layer Input feature and layers in the Data panel that are served by a third party. Most importantly, this will allow layers currently under the "Marine Life Library (Species Specific)" category, which are served by MDAT, as well as the Communities at Sea individual ports maps, to be bookmarked and shared.

## Linear Measurement Tool

Identified as a common feature request during the state training sessions, the Mid-Atlantic Portal is to be upgraded with a widget allowing users to be able to measure linear distances on the map.

In the Marine Planner map view, users are to be presented with an intuitive on-screen process to quickly draw out a linear distance on the map using their mouse and have its value reported back. This feature will be open-ended enough to allow users to measure arbitrary on-screen elements, including drawn features, spatial data in the overlay layers, or simple points on the basemap.

# 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 2018 and projected for the 2019 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; 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 MARCO and the OMDT. When these targeted data sets are not available through existing credible, authoritative sources, CRSSA has developed, processed, and published these data sets in-house. Examples of in-house data publishing activities include the "Communities at Sea" commercial fishing dataset, published in 2018, as well as ongoing oceanography-themed data, including fronts and net primary productivity, also in 2018 (and in previous years). These geospatial datasets must then be prepared for visualization through cartographic representation in ArcGIS. Other production tasks include the composition and/or assembly of data layer descriptions and metadata documentation.

### 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 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 2019, 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 2018, 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 Library), Ecotrust has developed codes/scripts to facilitate this import process. CRSSA and the Technical Team works with Ecotrust during this process to assists as needed. For example, Ecotrust played a major role in the import of Duke University's Marine Life Library, and in 2018, to integrate Duke's revised 2.0 Marine Life data into the Portal.

### 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 2018, 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 performed on the Portal staging site (or Sandbox working site) for review. Once approved, these data and metadata appear in the Portal viewer and data catalog, respectively.

### Enhanced Visualization/Slider Tool

Animation capability was developed by Ecotrust for the Portal application in 2018. CRSSA activities in 2019 will include the creation of animations using the Portal administrative tool for such datasets as the annual and/or monthly AIS data, commercial fishing VTR/Communities at Sea, and oceanography. The Technical Team will also prepare for the forthcoming shifting species animation work (see Sections I and II for more on data applications for slider tool).

As the creation of the animations is a time intensive process requiring extensive staff time, the Technical Team is considering possible option in 2019 for the automation of the animation creation process (by Ecotrust), especially for some of the more lengthy data sets/lists requiring animations.

## Systems Administration/Server

CRSSA installed, configured, and currently maintains the Portal ArcServer on Amazon Web Services (AWS). As of 2018, CRSSA manages the Portal AWS as it hosts web services

published using ArcServer. The Portal AWS is the current structure for the Portal-published web services, however, CRSSA is evaluating an alternative server solution. A potentially more cost-effective solution to move the ArcServer and web services to a Rutgers server is under consideration, with data performance also a high priority. The move would also have the advantage of providing secure service links that are more compatible with commonly used ESRI software. CRSSA will report to the Technical Team during this evaluation process.

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 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 coordinates quarterly calls with state and federal partner members of the Ocean Management Data Team, or 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 2019.

# Part IV
# Communications and Outreach

Much like the 2016 lead-up to the completion of the Ocean Action Plan, 2018 was a time when multiple large-scale datasets that had been years in the works were published in quick succession. As a result, the communications activities in 2018 revolved largely around the transfer of these new technologies to the public with a full suite of instructional resources and public outreach efforts.

With the rollout of those datasets now substantially complete, it is anticipated that this year will entail a greater focus on targeted instructional engagements to cement the Portal's growing base of regular users. These include the most serious users among the five states' agency staffs as well as emerging user groups such as environmental NGOs, fishermen, offshore wind developers, undersea cablers, educators and non-ocean planners whose work has some crossover.

## Tools and Activities

### Training Sessions & External Engagement

The Portal team has made important strides in building a community of practitioners who regularly incorporate the Portal in their work through in-person training sessions. In particular, adoption among state agency staff members was bolstered significantly by a series of half-day demos and listening sessions conducted in the fall of 2017.

MARCO state staffs have expressed interest in the Portal Team conducting a second round of state trainings in 2019. Feedback has indicated that a combination of the volume of new data added to the Portal since the first sessions, staff turnover, a growing focus on issues like offshore wind and the general need for a refresher course would make the summer/fall of 2019 opportune for trainings.

The Portal Team will work with the state staffs to organize these identified sessions in the late spring/summer timeframe:

- Joint Delaware-Maryland training with MAFMC participation in the Ocean City vicinity
- A downstate New York session (previous was held in Albany)
- A Virginia training to be aligned with wind work group
- New Jersey training

In conjunction with New Jersey's offshore energy master plan development process, Portal Team members will provide a training component in a series of stakeholder meetings organized by Rutgers University for local public officials, commercial fishing and NGOs over the winter.

The team will also work to organize training(s) for professionals in key industries, such as offshore wind, commercial fishing, maritime/port safety groups, educators, environmental NGOs and the media. State staffs and other stakeholders may be consulted as to who the best contacts are in each area.

The team will continue to accommodate requests to provide in-person and online trainings tailored to the needs and abilities of the respective audiences. Less-structured demonstrations will also be provided through kiosks at events that could be helpful for reaching stakeholder groups, such as MARCO-hosted meetings and regional conferences.

Finally, opportunities will be sought to place team members on high-visibility panels and enter the Portal for notable awards.

## Portal Blog

The News page (portal.midatlanticocean.org/news/), commonly known as the "Portal blog," has grown into a key on-site tool for keeping audiences engaged and informed. As a matter of practice, all significant data additions, new/improved tools or other important developments are promptly reported in this section.

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 positive news articles about Portal; stakeholder profiles and other articles relevant to audience.

## Webinars

Like the in-person training sessions, our semi-monthly "How Tuesday" webinar series has been a successful vehicle for increasing Portal literacy and drawing 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, working groups.

Recordings are posted to the Webinars page, Portal Blog and in some cases, the Learn how to use the Portal's tools page, where they can live on as educational resources for those who couldn't attend.

The Portal will offer these and other webinars TBD in 2019:

- Two "Portal 101" sessions for users of all levels

- A lesson on using the Portal's advanced tools, timed to when upgrades to the bookmark tool and sliders are complete
- Session showing the Portal's expanded socioeconomic data when complete
- Webinar highlighting new maps depicting shifting fish species
- A training session geared toward for federal and state agencies, NGOs and others on use of the updated marine life models and marine library
- A joint webinar with MARACOOS highlighting oceanography data

## 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.

As part of the recent redesign of the Portal homepage, users logging in to [www.portal.midatlanticocean.org](www.portal.midatlanticocean.org) are no longer randomly directed to an Ocean Story. However, the section remains an important communications asset and will be updated with new stories in 2019.

The team will pursue story topics that fill gaps in terms of unrepresented users, highlight new data products and promote case studies showing people who have used of the Portal to solve problems or aid decisions. Seek unique story angles that can provide human dimensions to map data. Stories that could be produced include, but are not limited, to:

- **Virginia Beach Cables**: Story would explore Virginia Beach's recent growth as a hub for submarine cables, highlighting how Portal helps guide these projects.

- **Wrecks of the Mid-Atlantic**: Highlight one or more wrecks as part of discussion of their rich history and importance to recreation tourism, marine life and fishing.

## Case Studies

As part of the 2018 Portal redesign, a new Case Studies page was created with examples of how the Portal is being used to make decisions, solve problems and improve projects throughout the Mid-Atlantic. These examples are typically documented in the form of single-page fact sheets that can serve as leave behinds for meetings with decision makers (the list also contains links to Ocean Stories that serve as good case studies). These case studies will be expanded in 2019 to include new stories that demonstrate the Portal's utility.

The team also maintains a non-public list of use examples in Google Drive folder. This bulleted list contains some items that cannot be used to create fact sheets (due to privacy concerns or controversial elements), but are maintained as a useful reference for Portal/MARCO members.

## 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 continually 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 lay user to follow.

## Twitter and Campaign Monitor

Now with approximately 500 followers, 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 tweets are posted multiple times per week.

The communications lead frequently uses hashtags to tie messages to larger conversations and trending topics. The #MondayMapDay hashtag – which was created by the communications lead in 2015 and is now used by other accounts – is used at the beginning of each week to share a Portal map online and has been successful in attracting new followers.

The team maintains a Campaign Monitor account to produce an electronic newsletter to registered users and other subscribers 4-6 times per year. 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 ocean planning events and more. The communications lead will maintain the e-list, add new registered Portal users and those who provide contact information (via sign-up sheets at Portal kiosks, etc.) on a rolling basis.

## Page Improvements and Maintenance

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

- Regular additions to the Calendar page with Portal/MARCO events and other events relevant to Portal community.
- Keep informational pages such as Data Catalog and Needs & Priorities up to date as new Portal products come online.
- Evaluate needs for new pages and site organizational changes.

## Other Miscellaneous Tasks

- Fielding questions from the public submitted through the Portal's online for and email account, [portal@midatlanticocean.org](mailto: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. Assist with basic MARCO web IT issues, sourcing/posting of new images, loading videos to YouTube/posting to site.
- Staffing Portal kiosks at MARCO events and other conferences.

## Analytics

Finally, the Portal's traffic on Google Analytics will be monitored for trends and spikes in use that may inform the team's work. For example, due to the consistently high activation rate for the Artificial Reefs map layer, the team has prioritized a review of the data in 2019 to ensure it is up to date. Additionally, the BOEM Active Renewable Energy Lease Areas layer's status as the Portal's most activated map and the surge in traffic around the time NYSERDA released its Wind Areas of Consideration highlight the need to offer prompt, up-to-date data related to offshore wind development.

The following are some Google Analytics figures summarizing traffic on the Portal for the one-year period running from June 1, 2017, through May 31, 2018.

## User Analytics One-Year Snapshot
### June 1, 2017-May 31, 2018
(Source: Google Analytics)

**Sessions**: 12,802 (1,066 per month)
**Total Page Views**: 41,924 (3,493 per month)
**Avg. Session Duration**: 6:19
**Most Viewed Pages**: Marine Planner 9,624, Ocean Story #1 ("Every Map Tells a Story") 5,013, Data Catalog 2,285, homepage (debuted in January) 1,870, scallops ocean story 1,215, Data Catalog – Fishing section 1,132
**Traffic Sources**: 41% direct, 33% search (+10.5%), 22% referral, 4% social

**Marine Planner Stats**
Layers Activated: 52,853
Themes Activated: 20,333
Avg. Time on Page: 7:37

**Top 20 Most Activated Layers**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | BOEM Active Renewable Energy Lease Areas | 1,758 | | 11. | Party & Charter Boat | 529 |
| 2. | Artificial Reefs | 1,526 | | 12. | Benthic Habitats (South) | 507 |
| 3. | Danger Zones & Restricted Areas | 1,198 | | 13. | Wind Speed | 505 |
| 4. | Unexploded Ordnances | 1,156 | | 14. | Federal OCS Administrative Boundaries | 500 |
| 5. | Scallop 2011-2014 (<5 knots) | 1,106 | | 15. | Benthic Habitats (North) | 495 |
| 6. | Area outside 95% survey effort (avian, annual) | 1,004 | | 16. | Dredge 2011 - 2013 | 493 |
| 7. | BOEM Wind Planning Areas | 988 | | 17. | Essential Fish Habitats | 491 |
| 8. | All Vessels (2013) | 733 | | 18. | Bottom Trawl Over 65ft 2011 - 2013 | 478 |
| 9. | Regional Bathymetry | 547 | | 19. | Sea Turtles | 477 |
| 10. | Submarine Canyons | 544 | | 20. | NYS Identified Wind Energy Area of Consideration | 464 |

## Most Activated Themes

| | | |
|---|---|---|
| 1. | Fishing | 3,109 |
| 2. | Marine Life | 2,613 |
| 3. | Maritime | 2,372 |
| 4. | Oceanography | 2,108 |
| 5. | Renewable Energy | 2,034 |
| 6. | Recreation | 1,620 |
| 7. | Security | 1,562 |
| 8. | Administrative | 1,501 |
| 9. | Marine Life Library (Species Specific) | 1,183 |
| 10. | Human Use Data Synthesis | 1,021 |
| 11. | Socioeconomic | 952 |
| 12. | Fishing - Communities at Sea | 203 |
| 13. | Oceanography (BETA) | 54 |

*Notes: #12 only debuted in late May 2018.*
*#13 is a name that was changed; total should be added to #4.*