Introduction
The Northeast Regional Ocean Council (NROC) and the Mid-Atlantic Regional Council on the Ocean (MARCO) partnered with the Responsible Offshore Development Alliance (RODA), to obtain feedback from the commercial fishing industry on potential improvements and updates to map and data products on the Northeast and Mid-Atlantic Ocean Data Portals (Portals) that show the use of ocean space by the industry. This included MARCO and NROC collaborating on a work plan for the use of each region’s FY19 Regional Data Sharing funding to engage ocean data portal users and the commercial fishing industry. The goals of this project included increased collaboration with the fishing industry on the development of products that represent their interests and improved fishing industry trust in regional data products and the data that are being used to inform decisions. This final report summarizes the data that are housed on the Portals, the process for engaging the commercial fishing industry, and the feedback from the industry on potential improvements and updates. It also notes which updates and improvements have already been initiated. Other updates will continue to be scoped and advanced in 2021.

Data
The Portals contain several categories of maps and data products that are derived from a wide range of fishery-dependent data sources. These sources include:

- Vessel Trip Reports (VTR) as the primary source of data for the “Communities at Sea” maps,
- Vessel Monitoring System (VMS) as the primary source for the “Vessel Activity or VMS Maps”,
- Automatic Identification System (AIS) as the primary source of the “Transit Counts” maps and data, and
- Commercial fishery management areas found in the “Management Areas” folder in each Portal.

There are currently few datasets on the Portals for lobster or recreational fisheries due to previous industry input on the limitations of existing and potential data sources for these fisheries. However, separate white papers discussing options for both of these fisheries were completed as part of this project.

Vessel Trip Reports
Vessel Trip Reports (VTRs) must be submitted to NOAA Fisheries for each fishing trip made by federally permitted vessels. A full description of VTRs can be found on the NOAA Fisheries website. VTRs document all fishing activity and catches. A new VTR is completed whenever the vessel changes the chart area where it is fishing, gear type, or mesh or ring size during a trip. VTRs collect the following information: vessel name, permit number, date and time sailed, date and time landed, type of trip (commercial or recreational), number of crew, gear code, mesh size, gear quantity, gear size, fishing
depth, number of hauls, chart area, latitude, longitude, tow/soak time, species code, amount kept, amount discarded, dealer permit number, dealer name, date sold, and offloading port for each species caught.

There are some data limitations associated with VTRs. VTRs are self-reported data and because of this there is some concern about the total catch data (multiple reporters can add in error). Also, VTRs only require one position per trip. The Portals use the single reported latitude and longitude resulting in a single point location representing a trip. This results in an underestimate of the spatial extent of a fishing trip and the inability to assign catch to a precise location. Last, catch is reported on a trip and sub-trip level instead of at the tow or haul level, which would provide higher resolution of catch, and location data.

The VTR-based “Communities at Sea” maps on the Portals extend from 1996 – 2015. Data are displayed based on the following types of gear: bottom trawl (for vessels smaller and larger than 65 ft), dredge, gillnet, longline, and pots and traps (the pots and traps maps do not include lobster).

**Vessel Monitoring System**

The Vessel Monitoring System (VMS) is a satellite surveillance system used to monitor the location and movement of commercial fishing vessels in US waters. A full description of VMS can be found on the NOAA Fisheries website. On-board transceiver units send position reports that include vessel identification, time, date, and location. Frequency of reports vary by fishery, e.g. in the Greater Atlantic Region units must transmit a signal hourly or twice per hour for scallop permit holders. Hourly position pings limit area resolution and the extent of such limitation is based on speed.

Not all fishery management plans require VMS; some fisheries are not covered by VMS at all (e.g. summer flounder, scup, black sea bass, bluefish, American lobster, spiny dogfish, skate, whiting, and tilefish). When participating in one of the fisheries where VMS is not required, the non-VMS fishery trip is represented by a “DOF-COM” (Declared out of Fishery) VMS trip code. This results in a substantial amount of fishing activity represented by the DOF VMS code. This activity cannot be assigned to a specific fishery unless each trip is corroborated with a VTR or other reported information (bearing in mind that a vessel can “target” one species and catch another—even in greater amounts—on any trip). Including the DOF VMS code on the Portals would show the public that there is fishing activity occurring but cannot inform what the target species is. There is also limited historical coverage for most fisheries as VMS was required for fisheries at different times, e.g. the groundfish and scallop fisheries required VMS from 2006 but it was only required for Illex squid since 2017 (81 FR 90246).

The VMS-based fishing and transit data on the Portals extend from 2006-2016 (depending on the fishery). These data are split out based on specific vessel speeds for each fishery to isolate potential fishing activity (gear type and target species can dictate what speed a vessel tows or sets gear ranging from 3-5 knots) from other vessel activity. There are separate maps for northeast multispecies, monkfish, scallops, surfclam/ocean quahog, pelagics (herring, mackerel, squid), herring, and squid.

**Automatic Identification System**

The Automatic Identification System (AIS) is a “shipboard broadcast system that acts like a transponder, operating in the VHF maritime band, that is capable of handling well over 4,500 reports per minute and
updates as often as every two seconds.”1 AIS provides users with information on other vessels including location and direction. AIS was developed for maritime safety and security purposes and products on the Portals include any vessel that carries a transponder, including tug/tow, cargo, tanker, passenger, recreational, fishing, and other vessel types. These data are limited for the commercial fishing fleet because only vessels greater than 65 feet in length are required to have AIS installed, and regulations permit these vessels to deactivate transponders when further than 12 miles from shore2. In addition, AIS uses VHF; the strength of the VHF signal can vary with distance to shore especially if the onboard equipment has been damaged and not yet repaired.

The Automatic Identification System (AIS)-based transit data is compiled from USCG. The AIS system allows vessels within radio range to be displayed on a vessel’s radar. The AIS system is based on VHF, which may fade the farther offshore a vessel goes, limiting its usage in describing fishing patterns. Previously AIS data for fishing vessels for 2015-2019 were displayed3. These data can be manipulated using the time slider, allowing for monthly comparisons. These data are not fishery or gear specific.

Fishery Management Areas
Fishery Management Areas (FMAs) can be defined as spatial boundaries delineating the implementation of one or more place-based harvesting rule(s), such as access, eligibility, gear, or time restrictions, or catch limits for target or non-target stocks. Fishery Management Areas vary by fishery management plan (FMP) and can vary by year or season within an FMP. Fishing regulations dictate where and when fishing can occur at any given time. Understanding any FMAs that may be, or have been, in place can help explain fishing patterns and variability in fishing activity across fishing years. The FMAs are sourced from the Greater Atlantic Regional Fisheries Office (GARFO) website. The FMAs are typically updated via management action and published on the GARFO website after implementation. The types of areas vary from fishing zone boundaries to habitat areas. The team updates the management areas annually on the Portals.

Outreach
Project staff from NROC, MARCO, and RODA organized a kickoff webinar to inform their membership and the public about the project. Staff presented the plan developed by the team to obtain feedback from the fishing industry. This kickoff and the plan presented were held before the widespread quarantine throughout the region that prevented holding in-person meetings.

RODA’s initial plan to obtain input was modified after the Covid-19 pandemic reached the U.S. in March 2020. In the interest of safety, in-person meetings were not convened as originally planned. Instead, the plan focused on a series of webinars and one-on-one calls to obtain specific feedback on each fishery. Staff also participated in a number of Advisory Panel meetings organized by the New England and Mid-Atlantic Fishery Management Councils and provided regular updates at full council meetings. RODA staff organized fishery specific webinars to maximize the amount of feedback received. All webinars were advertised to the public via email and on RODA’s website. RODA also set up a survey on its website for any interested fishery participant to provide feedback that could not attend a webinar or speak on the phone.

1 Navigation Center https://www.navcen.uscg.gov/?pageName=AISmain
2 USCG AIS regulations only apply in navigable waters of the US, which stops at 12 nm.
3 USCG AIS regulations exempted fishing vessels of 65ft or more when originally implemented in 2003 but this was amended to include them in 2015.
The success of this project was dependent on feedback from the fishing industry. The team modified the outreach plan after the Covid-19 pandemic reached the U.S. in March 2020. For each webinar, the team provided attendees with an overview of the Portals including the data themes available and the various types of users accessing the Portals, and the ways in which the Portals have been used to support decision making. The presentation (see Appendix) outlined the four fisheries data types currently on the Portals: fisheries management areas, VTR-based “Communities at Sea,” VMS-based fishing and transit, and AIS-based transit.

**Council meetings**
Team members presented at the New England Fishery Management Council (NEFMC) January 2020 meeting in Portsmouth, NH. At this meeting, the NEFMC was asked to support our outreach efforts by allowing us to present and solicit feedback from its advisory panels (composed of industry and subject matter experts). We presented an update to the NEFMC at its virtual June 2020 meeting and presented project findings and next steps at the December 2020 meeting. The project team obtained important feedback during presentations with the NEFMC Whiting, Habitat, Herring, Scallop, Groundfish, and Recreational Advisory Panels.

The project team made a similar request to the MAFMC to help foster outreach for this project. The MAFMC organized a webinar for all of its advisory panels including summer flounder, scup, black sea bass, bluefish, mackerel, squid, butterfish, tilefish, surfclams, ocean quahogs, river herring, shad, and spiny dogfish that was held on June 5, 2020.

**RODA-organized webinars**
To replace in-person meetings, RODA staff organized a series of webinars open to the public (and announced on RODA’s website). Webinars were held from May through September for the northeast multispecies, skates, monkfish, herring, mackerel, squid, surfclams, ocean quahogs, northern shrimp, scallops, and other Mid-Atlantic fisheries. These webinars were interactive with staff able to display maps and show fishermen multiple features of the Portals.

**Other presentations**
The team organized a panel to discuss the Portals at the Maine Fishermen’s Forum (Forum) in March 2020. The Forum is a three-day meeting, organized by fishing industry members, that “hosts fishermen, gear suppliers, scientists, government and other stakeholders to collaborate on all things fishing: markets, resource status, regulations, the latest in technology, the environment, and more.”

The team also presented on the Fishing Operations and Offshore Wind Research webinar on July 29, 2020. The webinar was organized by the Northeast Fisheries Science Center and the Greater Atlantic Regional Fisheries Office in order to discuss the use of Fishery Dependent Data and other resources to evaluate the impacts of offshore wind energy development on fisheries operations.

**Lobster**
Lobster outreach was completed by an additional team member. Details of that outreach are included in a separate white paper that was drafted as part of this project.

**Recreational**
Outreach to recreational fishery participants was completed by an additional team member. Details of that outreach are included in a separate white paper that was drafted as part of this project.
NROC/MARCO
NROC and MARCO staff provided regular project updates and obtained feedback from agency staff during NROC and MARCO meetings throughout the project period. Several meetings were also convened with specific agency staff to coordinate with existing agency activities and to obtain detailed feedback on project plans and potential improvements to Portal data products.

Summary of Findings (by Fishery)

Northeast Multispecies
The Northeast (NE) multispecies complex consists of 13 species: Atlantic cod, haddock, yellowtail flounder, pollock, American plaice, witch flounder, white hake, windowpane flounder, winter flounder, Acadian redfish, Atlantic halibut, Atlantic wolffish, and ocean pout. The majority of groundfish landings come from the Gulf of Maine or from Georges Bank. The main gear types used are bottom trawl, sink gillnet, and hook gear. Additional information can be found at the GARFO website and the Northeast Fishery Management Council’s website.

Feedback from the fishing industry
- Develop products for the fishing year, instead of calendar year, to reduce chance of missing fishing data because of the constraining impact Annual Catch Limits (ACL) can have on fishing behavior and to align with fisheries management. The fishing year for the NE Multispecies fishery extends from May 1 to April 30.
- Maps should be on a fishery-by-fishery basis, allowing for unique features of each FMP to be known. Because of the differences between FMPs, consideration of any unique features should be made even if it leads to inconsistencies across FMPs, e.g., grouping multiple fishing years together because the same ACL was in place vs. no grouping for a FMP with new ACLs in every year.
- Multiple fishing years are needed; 1 fishing year doesn’t capture the footprint and may misrepresent the fishery. This is because fish can shift their distribution depending on prey, temperature, and other environmental factors.
- Add additional historical fishing years, preferably back to 1996 to better show trends in fishing. The trends could be caused by regulations and fish distribution. Fishing regulations can change where fishing occurs as NMFS must prevent overfishing and allow industry to achieve optimum yield. The Communities at Sea data set extends back to 1996 however, this can’t be done for VMS based products because that database doesn’t extend back that far (and implementation varies by FMP).
- Support for using the NOAA fishing footprints. This tool shows a long time series showing the inherent variability in fish catch (driven by fishing regulations and fish distribution). Recent (last 5-10 years) catch for Atlantic cod is low because fisheries management reduced the ACL to rebuild to its historical footprint. Situations like the Atlantic cod example are why the fishing industry is supportive of long time series being available for the public in addition to the proper context of fisheries management included in the metadata.
- Document caveats about management measures limiting fishing somewhere on the Portals, even if it can’t be displayed in a map. The public should know that reduced fishing activity doesn’t mean the fish aren’t there. Restrictions such as gear restricted areas (part of Accountability Measures) are designed to prevent overfishing of a target species or the
incidental catch of other species can serve to effectively close areas to fishing. Other management measures, such as rotational management for scallops, purposely closes areas to fishing while opening up other areas. These measures can be very complicated to understand for those who don’t operate within them full time and may result in the general public concluding that climate change or overfishing has occurred and are eradicating fish from an area.

- Some concern over the fishing footprints for multispecies because it might not be representative of the whole fishery due to trips being cut short if too much of one species was caught on a trip, e.g. yellowtail flounder. The sector system currently used to manage the NE multispecies fishery allocates potential sector contribution (PSC) for each fish species to each vessel within a sector based on permit history. The allocated PSC may not be sufficient to cover all catch forcing the vessel to lease additional quota. Vessels that can’t afford to lease additional quota (prices are set on an open market) actively avoid areas where those quota limiting fish are caught. This also affects the footprint of a fishery or species on the Fishing Footprints tool.
- Revisit the speeds used to identify fishing because these will vary with fishery.
- Danger of looking at just one year of data; could consider using a range, if appropriate.

**Atlantic Scallop**

The Atlantic sea scallop fishery primarily operates from the U.S./Canada border to the Mid-Atlantic. The fishery is mostly executed using single scallop dredges, however, trawl gear can be used depending on the permit type. Scallops are largely landed as shucked meats; they can be landed whole but there are limits on whole scallop landings that vary by permit type. Additional information can be found at the GARFO website and the Northeast Fishery Management Council’s website.

**Feedback from the fishing industry**

- For VMS speed thresholded products:
  - 5.5 knots might be a better speed (currently the portals are using 5 knots) - they tend to tow turtle excluder dredges at a faster speed
  - Conduct sensitivity analysis on the speeds to see if there is a difference
- map fishing activity with changes in rotational management areas - to help explain why areas don’t see effort in some years
- Economic draw - might fish for a couple hours/day in newly opened fishing grounds and spend the rest of the day processing; fishing less but still producing but can’t leave the access area (because these vessels must shuck at sea)
- Provide the expired rotational areas via the Portals and via GARFO’s website. GARFO does not currently have these data, but they can be found in old Federal Register notices. *The scallop rotational areas can vary annually - if only the most recently implemented rotational management area is shown on the Portal the public misses out on the context or the conditions driving the fishing patterns in previous years.*
- If the rotational management areas cannot be added as annual options for the public to click on, then label current rotational management areas as the year it was implemented, e.g., 2020. This current rotational management area can be displayed with older fishing activity, e.g. 2016, and the public is more aware that the management area was not in place for all fishing years.
- Provide sequential maps over time to show the change in fishing caused by rotational management. *This is related to the point above; the specific data type was not identified but could be applied to VTR or VMS data for this fishery. The main point is that the management areas significantly contribute to fishing patterns in any one year.*
- AIS - required for vessels over 65 ft but the further they go offshore the less likely someone will pick you up
● AIS - for Nantucket Lightship vessels tend to leave them on for avoidance; as they can be used for detection and avoidance of other vessels operating in the area; operators may turn off AIS when on a particular fishing hotspot for a bit
● would be interesting to see how much resolution you lose if you do annual maps (recognizing the potential impact that confidentiality concerns have on reducing the amount of data that can be used in map products) but annual maps would be good to show rotational management
● Support for showing maps based on the fishing year but some concerns that each year can have different delays in the start of the fishing year (by a couple of weeks) in some years
● Another concern for showing data by fishing year was that NMFS has the ability to continue fishing rotational areas for an extra 60 days (in 2020 it was 90 days because of the pandemic), so every fishing year may be slightly different due to delays. The start of the scallop fishing year was changed from March 1 to April 1, effective December 5, 2016. If displaying the NOAA Fishing Footprints data or doing other VTR-based analyses - show landings instead of revenues - if you know price/lb you can estimate revenues from that anyway. Another useful metric for the public, would be to associate an area with the percentage of the fishery based on revenue. This approach could show small spots are highly important to some vessels and for multiple fisheries. This might downplay the transit areas because of scaling and might make people think only the biggest fishing spots were important and downplay the routes vessels rely on to get to their fishing grounds.
● AIS – is there an algorithm that shows the degree of fading as you get offshore? AIS is based on radar (limitations discussed above) and the fishing industry has strong reservations regarding its accuracy at sea, especially the further vessels travel from shore as the signal can fade.

Monkfish
The monkfish fishery operates from Maine to North Carolina. The fishery is split into two management areas: north and south. In the Northern Fishery Management Area, trawl gear is the primary gear type and there is some overlap with the NE multispecies fishery. In the Southern Fishery Management Area, gillnet is the primary gear type. The fishery is managed using a days-at-sea and trip limit management system. Additional information can be found at the GARFO website and the Northeast Fishery Management Council’s website.

Feedback from the fishing industry
● Show effort by gear type. The monkfish fishery has two main gear types used: trawl and gillnet. There is a strong geographic trend in fishing gear used as mentioned above.
● A fisherman stated that the Portal didn’t show fishing activity near the wind survey vessels where he fished. This may be a result of data processing for confidentiality; see the metadata for an explanation of the confidentiality process.
● Not all NY boats have AIS; AIS is not likely to show NY vessels’ actual activity. This comment was specific to NY, however, can apply to vessels in all states. AIS has two class types, A and B. Class B has a lower transmitting power, making it less reliable as vessels go further offshore. Fishing vessels greater than 65 ft in length must have AIS but typically have the Class B version.
● The zoom level and scale used when viewing maps on the Portals can affect the ability to see vessel traffic, especially traffic originating from a homeport. For example, traffic from NY vessels was more visible when zooming into a 1:10 scale compared to 1:20 or 1:50
Herring
The Atlantic herring fishery operates from North Carolina to Maine but herring is most abundant north of Cape Cod. Herring are caught mainly using trawls (bottom and mid-water, single, and paired), purse seines, gillnets, and weirs. Additional information can be found at the GARFO website and the New England Fishery Management Council website.

Feedback from the fishing industry
- It’s good to bin herring and mackerel together as they are often caught on the same trip.
- Add herring spawning areas layer
- Need to make it clear that vessels shut off AIS 12 miles offshore. Some vessels do this as it is outside of the navigable US waters as referenced above.

Surfclam/Ocean Quahog
The Atlantic surfclam fishery is mainly executed off of New Jersey and the Delmarva Peninsula. Hydraulic dredge is the primary fishing gear used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website. The ocean quahog fishery is mainly executed off of Maine and Long Island, NY. Hydraulic clam dredge is also the primary fishing gear used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

Feedback from the fishing industry
- Surfclam and ocean quahog fisheries should be displayed separately
- Data should be updated much quicker
- Overall fishery is displayed well
- There should be an interface between a permit holder’s VMS request and having the data on the Portal for viewing. This would involve opening up the portal APIs to NOAA and a good bit of work on NOAA’s end.
- HUDS data - useful in the past because it’s not looking at one fishery versus another; it’s all fishing intensities
- Could add a combined layer for scallops, clams, and ocean quahogs
- Portals should have both communities at sea and fishing footprints; they both have important elements
- A small number of vessels fish for both ocean quahog and surfclam, which might be why the same areas light up on the separate maps. However, they can’t fish for both on the same trip. If a vessel leaves the dock without declaring, NMFS assigns its last declaration to that trip, which could also explain the pattern.
- Really liked the draft maps with ocean quahog and surfclam activity separated
- Recommended separating out ocean quahog and surfclam activity as far back as possible on the Portals
- Less than 4 knots speed is probably appropriate for showing fishing activity; increases in horse power may have changed that
- Should show data in 1-2 year groupings
- Make data available through a web service - give folks access to newer data sooner

Squid
Squid is managed as part of the Mackerel, Squid, Butterfish Fishery Management Plan (FMP) by the Mid-Atlantic Fishery Management Council. In addition to longfin and illex squid, Atlantic mackerel, chub mackerel (but only since August 2020), and butterfish are also included in this FMP. The majority of the
Illex landings in 2019 were landed in NJ, RI, and MA. Otter bottom trawl is the most dominant gear type for Illex. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website. The majority of longfin squid landings in 2019 were landed in RI, NJ, NY, and MA. Otter bottom trawl is also the primary gear type for this fishery. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

Feedback from the fishing industry
- Hesitant about the Portals as ENGOs could misinterpret information and use it against industry.
- Not many vessels fish for squid when fishing for herring/mackerel.
- Might not be able to show Illex fishery activity in the wind energy areas because they might not meet the rule of 3
- Only have squid VMS data for 2014-2016; is it possible to use VTR data prior to 2014 to fill out those maps. Additionally, if you could overlay both (VMS and VTR) and provide an option where you could click on just longfin squid to view activity from the beginning of the data set to the most recent time period
- Increase the number of years of squid data displayed
- Speed for fishing activity might be 3.5 knots

Mackerel
Atlantic mackerel is managed as part of the Mackerel, Squid, Butterfish Fishery Management Plan (FMP) by the Mid-Atlantic Fishery Management Council. In addition to Atlantic mackerel, chub mackerel, longfin and Illex squid, and butterfish are also included in this FMP. The majority of the mackerel landings in 2019 were in NJ and MA. Otter bottom trawl is the most dominant gear type for mackerel. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

Feedback from the fishing industry
- Good to bin herring/mackerel together.

Skates
The Northeast Skate Complex is comprised of seven species: barndoor skate, clearnose skate, little skate, rosette skate, smooth skate, thorny skate, and winter skate. Skates are caught in the majority of gear types but are primarily targeted by otter trawl and gillnet. Additional information can be found at the GARFO website and the New England Fishery Management Council website.

No specific feedback from the fishing industry

Small-mesh Multispecies (Whiting)
The small-mesh multispecies fishery encompasses two stocks of whiting (silver hake), two stocks of red hake, and one stock of offshore hake. Silver and offshore hake catch is generally known as “whiting.” The whiting fishery operates from Maine to Cape Hatteras, North Carolina. Whiting are targeted using small-mesh trawl gear, which has requirements to reduce bycatch of larger groundfish species. Additional information can be found at the GARFO website and the New England Fishery Management Council website.

Feedback from the fishing industry
- Tease out the different fisheries grouped in the Declared Out of Fishery activity code
Whiting and squid fishing occur different areas but can be prosecuted by the same vessels or people, even on the same trips.

Lots of northern boats have to register for herring category C DAS – are those boats being included in the herring activity on the portals?

APSD at GARFO used binning rules to estimate bycatch when evaluating bycatch and other fishery features; binning rules used a combination of various activity codes, landings by percent or portion, etc. and may be used here.

**Northern Shrimp**

There is currently a moratorium on commercial fishing of northern shrimp because of its depleted state. This moratorium has been in effect since 2014. Trawl nets were used to catch northern shrimp and recent management measures would require the use of a double-Nordmore grate or compound grate system to minimize the catch of small male shrimp. Additional information can be found at the GARFO website and the Atlantic States Marine Fisheries Commission website.

**Feedback from the fishing industry**

- Maps of activity were provided by multiple northern shrimp fishermen for comparison with the VTR-based communities at sea maps that were on the Portal’s internal development site (not publicly available). The feedback from the industry concluded that the communities at sea maps were an accurate representation of the northern shrimp fishery when the fishery was open and the maps should be publicly released on the Portals. This would provide the public with the historic, and hopefully future footprint of the fishery once the moratorium is lifted.
- The longer the season, the greater the geographic extent; when the fishery is only open from January - March it mostly occurred within 20 miles of the coast, but when it is open in December, April, and May, it can occur in the deep basins further from shore.

**Golden and Blueline Tilefish**

Golden and blueline tilefish are managed between Maine and Virginia. Golden tilefish are mainly targeted between Nantucket, MA and Cape May, NJ. They are caught primarily using longline gear but handline, rod and reel, and trawl gear can also be used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website. The blueline tilefish fishery overlaps with the golden tilefish fishery and is also focused between Nantucket, MA and Cape May, NJ. Blueline tilefish are caught primarily using longline gear but handline, rod and reel, and trawl gear can also be used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

**No Specific Feedback from the fishing industry**

**Menhaden**

The menhaden fishery extends the length of the Atlantic coast. Atlantic menhaden are primarily targeted using purse seine. There are two types of menhaden fisheries: reduction and bait. The reduction fishery provides product for the fish meal and oil market. The bait fishery provides bait for fisheries including blue crab and lobster. Additional information can be found at the GARFO website and the Atlantic States Marine Fisheries Commission website.

**Feedback from the fishing industry**
● The majority of catch for the reduction (providing product for the fish meal and oil market) fishery is caught in VA state waters. See the Atlantic States Marine Fisheries Commission website for complete description of the historic footprint of the fishery.
● The reduction fishery generally doesn’t extend to MD, DE, NJ, and NY; gear is set closer to shore than the 12-17 miles offshore wind farms are set for.
● NJ boats have VMS on them; other carry boats (less than 50ft) typically don’t have VMS on board and have open access permits
● Menhaden bait fishery is managed by ASMFC and vessels have state, not federal, permits
● It was unclear if the menhaden fishery could be tracked using VMS since they are not required to have VMS in that fishery. Vessels may be required to use VMS for other fisheries; once a vessel operates in a fishery requiring VMS they must continue to use VMS for the rest of the fishing year. This applies to menhaden vessels; any menhaden trips for a vessel with VMS would be included in the “Declared out of Fishery” VMS code.

Scup
The scup fishery is managed as part of the summer flounder, scup, and black sea bass fishery management plan. The scup fishery operates from Maine to Cape Hatteras, North Carolina. Trawls or handlines are the primary gear types used to target scup but longline, rod and reel, pot, trap, gillnet, spear, and dredge are also used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

*Feedback from the fishing industry*
● Speed for fishing activity could be 4-4.5 knots

Fluke
The fluke (summer flounder) fishery is managed as part of the summer flounder, scup, and black fishery management plan. The fluke fishery operates from Maine to the North Carolina/South Carolina border. Bottom otter trawl is the primary gear type used to target fluke but pound nets and gillnets can also be used in estuarine waters. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website.

*Feedback from the fishing industry*
● Speed for fishing activity could be 3-3.2 knots

Black Sea Bass
The U.S. black sea bass fishery extends from Maine to Florida. A number of gear types are used to target black sea bass, primarily trawls or rod and reel, but longline, handline, pot, trap, gillnet, spear, and dredge are also used. Additional information can be found at the GARFO website and the Mid-Atlantic Fishery Management Council website. More information regarding the black sea bass fishery will be included in the recreational white paper.

*No Specific Feedback from the fishing industry*
**Dogfish**
The Atlantic spiny dogfish fishery operates from Maine to Florida. The fishery primarily uses gillnets but spiny dogfish are also caught using trawls and hook gear. Additional information can be found at the GARFO [website](#) and the Mid-Atlantic Fishery Management Council [website](#).

**No Specific Feedback from the fishing industry**

**General Feedback on all Fisheries**
In addition to the fishery-specific recommendations, the team received the following feedback which can generally be applied to most fisheries.

- Any economic information would be extremely valuable to the fishing industry. *This would also serve as a resource for the fishing industry to refer to for estimates of annual revenues; the new tool* from NOAA Fisheries that estimates the associated revenues by species coming from the wind lease areas may also help fill this need for industry.
- Is a horseshoe crab reserve layer available. *The Carl N. Schuster horseshoe crab reserve layer was recently added to the portals.*
- Change from calendar year to fishing year for fisheries that don’t use calendar year. *As noted above, fishing year can vary from calendar year, e.g. NE multispecies fishing year runs from May 1 to April 30.*
- Show closed areas, e.g. rotational areas, that might now line up when you group 5 years of data together. *This will provide the context of fishing regulations that affect fishing patterns within that time period.*
- Need to help the public understand where fishing lines up with regulatory closures that prevent fishing from occurring in that location.
- In general, provide clearer caveats and explanations of data limitations, and make these more easily viewable on the Portals. It is difficult to locate the metadata or not obvious that it exists to many Portal viewers and this leads to misinterpretation and misuse of Portal maps.
- Spatial regulations should be displayed, e.g. Accountability Measures (AMs).
- Fishery specific speeds should be used instead of 4/5 knots. *Previous industry feedback supported the use of 4 or 5 knots currently used on the Portals and a sensitivity analysis was also completed.*
- Is there a way to mask/maintain confidentiality for areas with less than 3 vessels so areas are still represented. *This is a concern to the fishing industry because the confidentiality rules can result in no activity in an area that one vessel might be completely dependent on.*
- Show DOF fishing, these include transiting vessels and any program that doesn’t require VMS. *The Declared out of Fishery VMS code is discussed above and represents a large amount of fishing activity that can’t be attributed to individual fisheries.*
- For DOF fishing, there has to be a way to blend the VTR with DOF fishing. *This idea was suggested to help assign the DOF activity to individual fisheries.*
- Support for fisheries stakeholders group for NROC/MARCO. *This would continue to provide direct feedback to the data portal organizers from fishing industry to maintain highest quality products.*
- Use alternative datasets for fisheries that don’t have VMS, for example using plotter data to show active areas by finding a way of using stakeholder group data by offering information without giving away proprietary information. VMS codes are tedious to go through but there is value in having appropriate metadata to try to bring some of that DOF activity into the portals.
• Example provided of stakeholder groups using data provided from food fish license holders in NY that mapped out fishing data in an aggregated way but not necessarily individual tows
• Suggestion to filter out nearshore low-speed transit instead of it being labelled as fishing activity
• Put Asterix with footnote to denote when Accountability Measure (AM) was in effect
• If adding revenue data only reflective when adding in fishing year
• Consider creating maps using observer data, which might provide high quality location information
• Support the use of NEFSC fishing footprints on the Portals
• Fishermen want data, like study fleet, to be used and made available
• Support fast-tracking of new tool NMFS is developing that expands upon the fishing footprints
• Support including DOF activity on the portals, but include in the metadata what fisheries this could cover

Future Work

Decide which VTR product should be incorporated into the portals
VTRs are currently used on the data portals in the communities at sea tool. This tool allows users to see where fish were caught using a particular gear type and landed in a specific port. This tool requires analyses to be re-run periodically as new VTR data become available, which require NROC/MARCO resources. The time series for the communities at sea tool extends back to 1996. NOAA Fisheries currently maintains its Fishing Footprints tool, which utilizes VTR (landings) and dealer data (revenues). The Fishing Footprints tool provides landings and revenues by year, for multiple species and fishery management plans, and gear types. This is updated by NOAA and would not require additional resources for NROC/MARCO to provide this level of data on the portals (other than integrating the data into the portals, which will still require significant effort/funds). However, it doesn’t include landings associated with home ports.

Revise the metadata documents
The metadata documents should be revised to provide more context on fisheries management and make it easier for the public to understand the data they are viewing. The additional information could include a history of fisheries management actions, providing the long-term history of catch limits, area closures, etc. for the public to better understand fishing patterns. It should also be more easily locatable and viewable on the Portals.

Develop new map-based products
These will be reviewed next year by industry members and will be based on the feedback from industry representatives for specific fisheries as detailed above.

Review the Federal work on Fisheries Information Management Modernization Workshop
In September 2019, NMFS held a workshop to discuss modernizing their data systems. The report can be found here.
Appendix: Overview of Portal Fisheries Data
(Presentation used during webinars and meetings with the industry)
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Nick Napoli, NROC & MARCO
Fiona Hogan, RODA
Overview of Mid-Atlantic and Northeast Ocean Data Portals

- Over 5,000 map products showing the footprint of activities and distribution of resources

- Products derived from federal, state, tribal, research/academic, and other sources

- Informed and vetted by regional experts, agencies, and stakeholders

- Functionality focuses on interactive mapping, contextual information, sharing, and data download

www.NortheastOceanData.org

portal.midatlanticocean.org
### Overview of Mid-Atlantic and Northeast Ocean Data Portals

#### Ocean Resources and Conditions Data Themes
- Marine mammals & sea turtles
- Fish
- Birds
- Habitat & other marine life
- Oceanography
- Bathymetry
- Geology, sand & sediment
- Water quality

#### Ocean Uses and Economics Data Themes
- Administrative & management areas
- Commercial fishing
- Aquaculture
- Energy
- Marine transportation & maritime
- National security
- Recreation
- Culture
- Socioeconomic
Overview of Mid-Atlantic and Northeast Ocean Data Portals

Portal uses
- Fishery management council alternatives
- USCG waterways management
- US Navy to ID areas for testing AUVs
- Offshore wind
- Energy and telecommunications cables
- Aquaculture siting/alternatives
- Dredge material disposal site designation
- Environmental assessments/NEPA
- State planning efforts and state portals throughout both regions
- Education & research

Portal users
- State and federal agencies
- Tribes
- Municipalities
- Industry
- Project proponents/developers
- Consultants
- Stakeholder/public comment
- Universities
- K-12 Schools
- Aquariums
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Fisheries Data Currently on the Portals

1. Fisheries Management Areas

2. VTR-based “Communities at Sea”

3. VMS-based fishing and transit

4. AIS-based transit
1. Fisheries Management Areas

- Current statistical reporting areas, closures, rotational areas, and habitat management areas
- From and updated by NMFS
- More detailed lobster management areas layers in development
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

2. VTR-based “Communities at Sea”

- 1996-2015
- Effort – days at sea
- By gear
  - Bottom trawl (< and > 65’)
  - Dredge
  - Gillnet
  - Longline
  - Pots and traps
- Overall density map for 5-year time period
- Area where 90% of effort occurs by port/gear type
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

3. VMS-based fishing and transit

- 2006-2016 (depending on fishery)
- Separate maps for:
  - Northeast multispecies
  - Monkfish
  - Scallops
  - Surfclam/ocean quahog
  - Pelagics (herring, mackerel, and squid)
  - Herring
  - Squid
- All activity and activity over industry defined transit speed threshold
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

4. AIS-based transit

- 2015-2017 on Portals
- 2018-2019 being added shortly
- Monthly data/patterns available via time slider
- Known limitations around AIS usage
- Not fishery or gear specific
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Currently No Data For:

• Lobster (near term potential to integrate ME DMR and MA DMF data; also potential to use VTRs)

• Recreational fisheries (near term potential provide products for party and charter vessels from VTRs)

Also, Considering Adding:

• Northeast Fisheries Science Center “Fishing Footprints”
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

NEFSC “Fishing Footprints”

- 1996-2018
- VTR-based
- Pounds landed; Revenue
- By species, gear, or FMP
- Potential for year aggregations
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Project Partners:

• **Responsible Offshore Development Alliance (RODA)** – coalition of fishing industry associations and fishing companies with an interest in improving the compatibility of new offshore development with their businesses.

• **Northeast Regional Ocean Council (NROC)** - voluntary forum for states, federal agencies, and other regional organizations formed by the New England governors in 2005

• **Mid-Atlantic Regional Council on the Ocean (MARCO)** - state partnership to address shared regional priorities and provide a collective voice formed by the Governors of New York, New Jersey, Delaware, Maryland and Virginia in 2009
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Funding:
Federal appropriation through NOAA to NROC and MARCO for regional data sharing for management decisions

Duration:
January through September 2020

Project Outcomes:
• Guidance for and updated maps on the NE and Mid-A portals with new years, additional products, and understanding of current and potential uses

• Upfront and consistent industry engagement on data product development and use via RODA convened focus groups
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Industry’s Role

• Provide feedback to RODA
  • Specific to your fishery and/or gear type
  • Attend any working group or other meeting where RODA is discussing the data portals, e.g. Council meetings or Council AP meetings
• Contact Fiona (Fiona@rodafisheries.org)
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

Early Project Outreach Through February

- Understand current and planned data efforts by organizations in both regions
- Understand the current and potential uses of the data
- Obtain feedback on RODA’s proposed approach to obtaining input from the industry
Updating Commercial Fisheries Data on the Northeast and Mid-Atlantic Ocean Data Portals

• Which of the following is important to the fishery(s) you operate in?
  • Adding additional years to the fisheries data? If so, what years?
  • Add more fisheries, even if they are merged across fisheries?
  • Add other data sets that are more appropriate to show fishing spatial activity? (please list below?)
  • Change the speed used to identify vessels actively fishing (in VMS or AIS)?
  • Consider additional methods for identifying fishing and transit areas?
  • Consider other ways of aggregating existing data to show important operations to the fishery (e.g. seasonal, annual, multiple years, or some other time period)?
  • Add additional important management or regulatory spatial areas?
  • Add other maps that would show things that are important to your fishery?
  • Change how transiting vessels are identified?
  • Include non-map information to provide better context to spatial depictions?
  • Other?