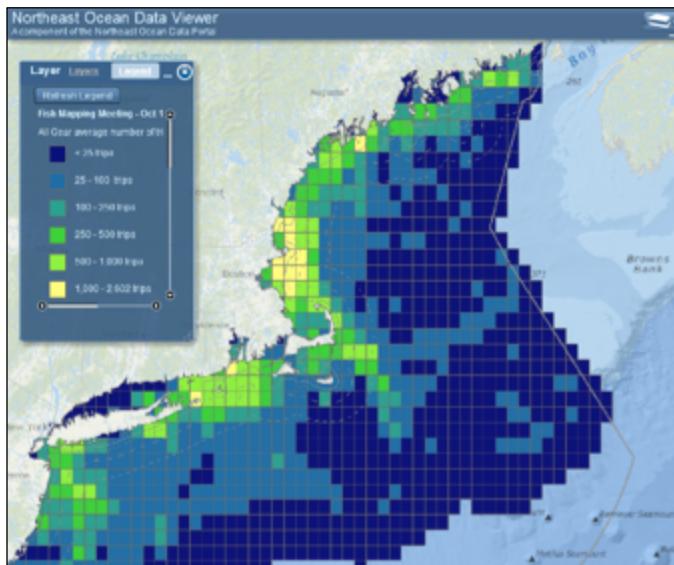
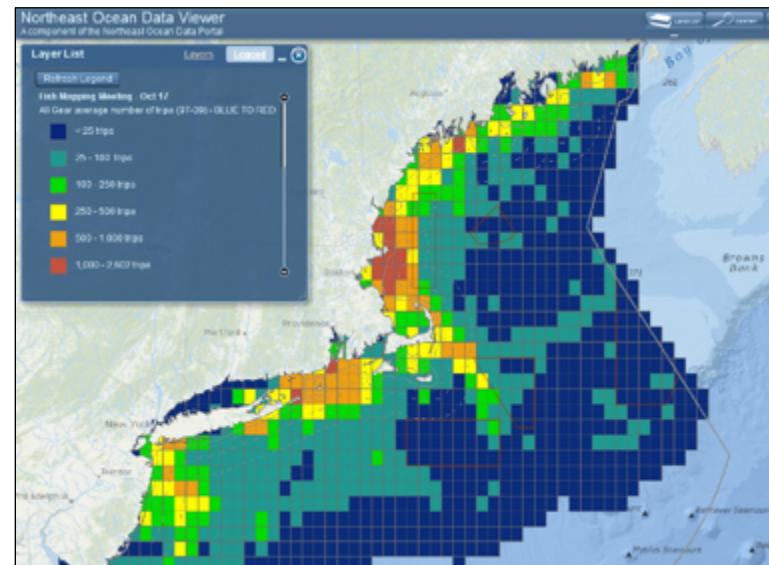


Appendix B: Mapping Efforts

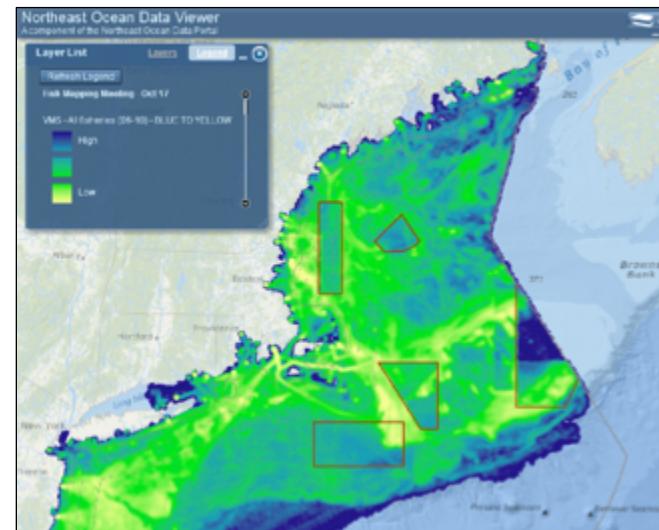
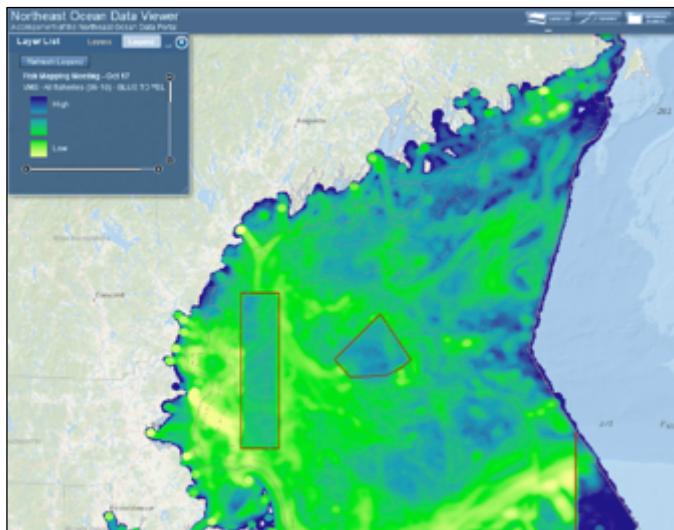
7.

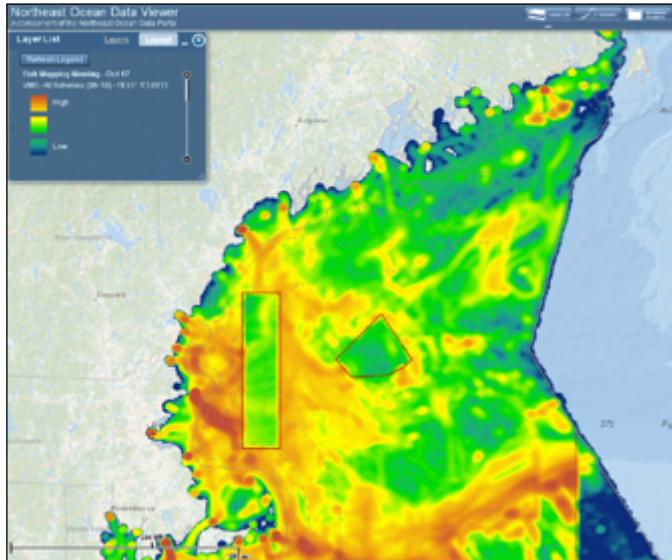


NROC 1:
All Gear Average Number of Trips (97-09) BLUE - YELLOW

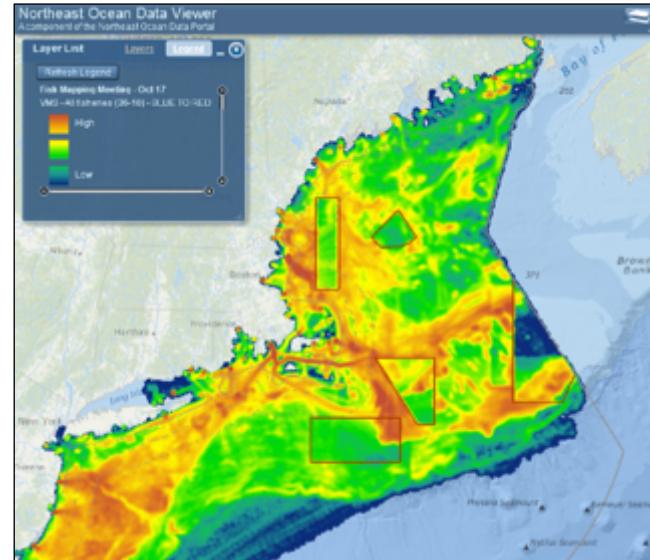


NROC 2:
All Gear Average Number of Trips (97-09) BLUE - RED

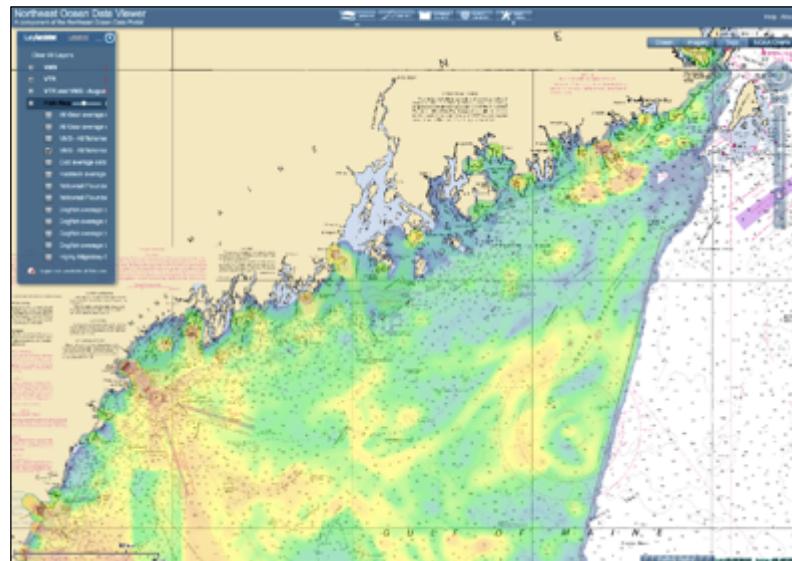




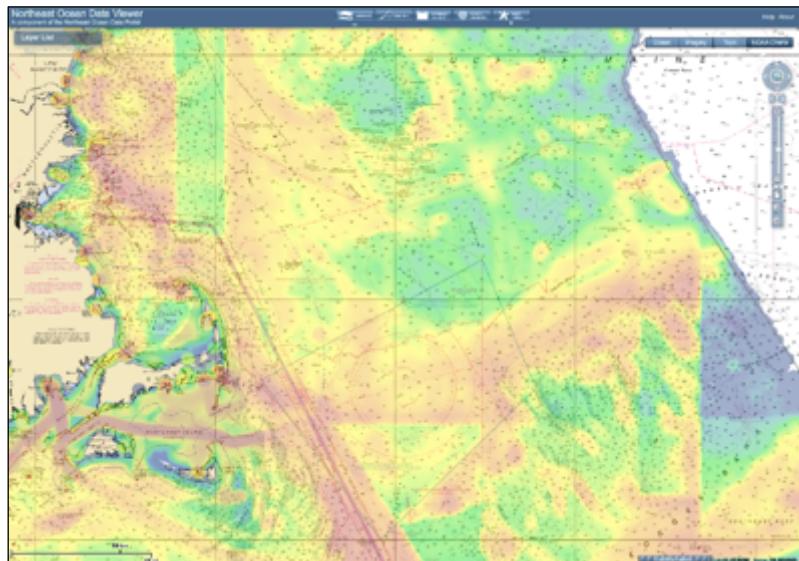
NROC 4A:
VMS All Fisheries (06-10) BLUE - RED



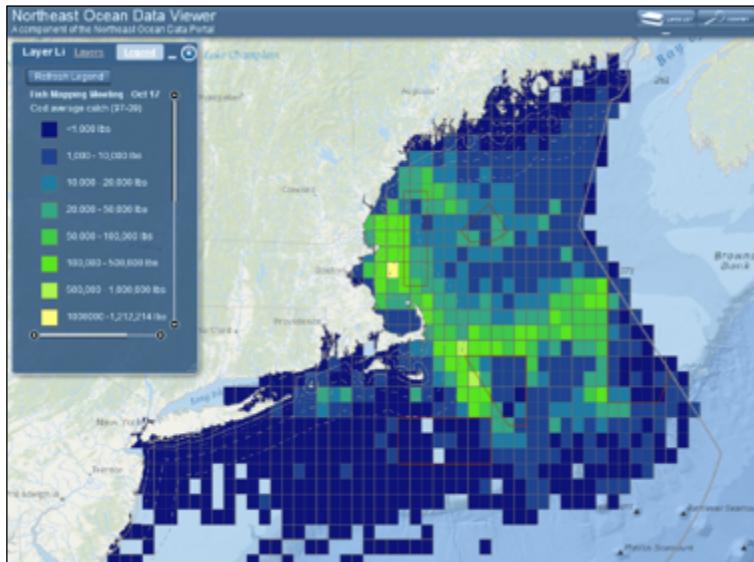
NROC 4B:
VMS All Fisheries (06-10) BLUE - RED



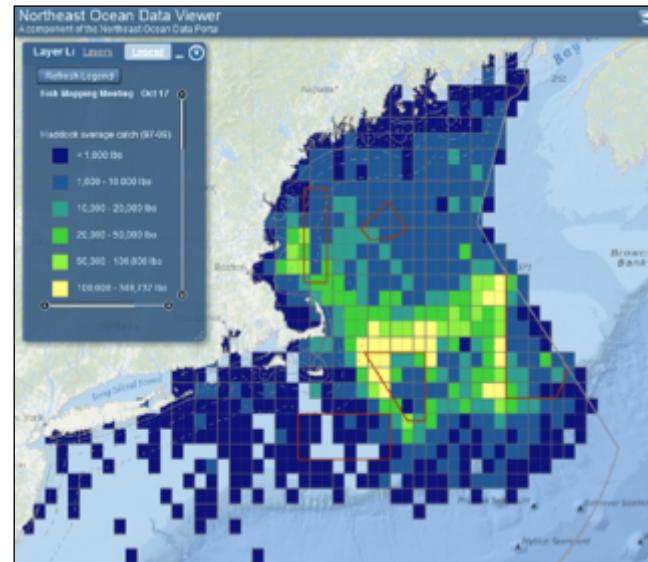
NROC 4B-2:
VMS All Fisheries (06-10) BLUE - RED



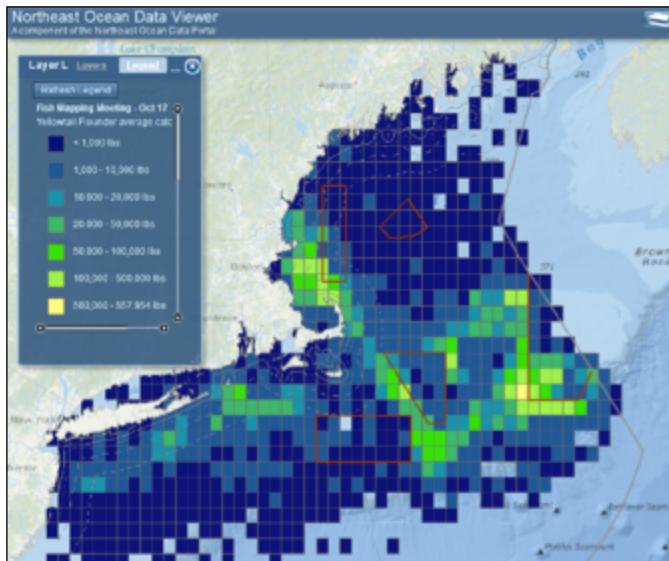
NROC 4B-3:
VMS All Fisheries (06-10) BLUE - RED



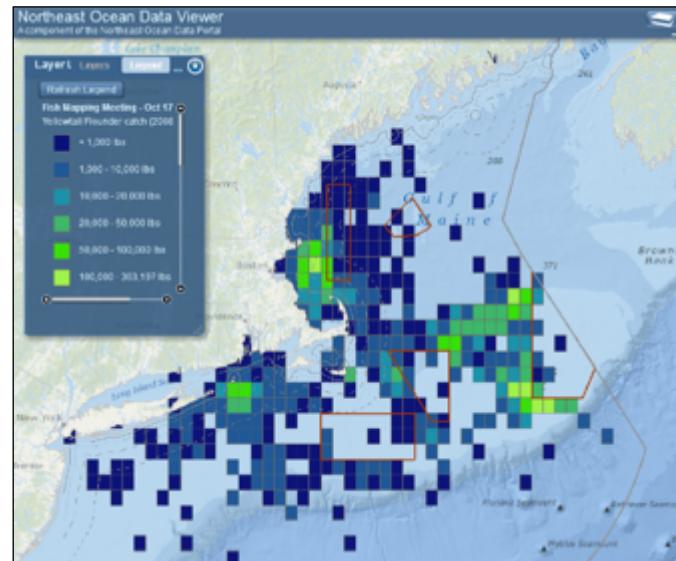
NROC 5:
Cod Average Catch (97-09)



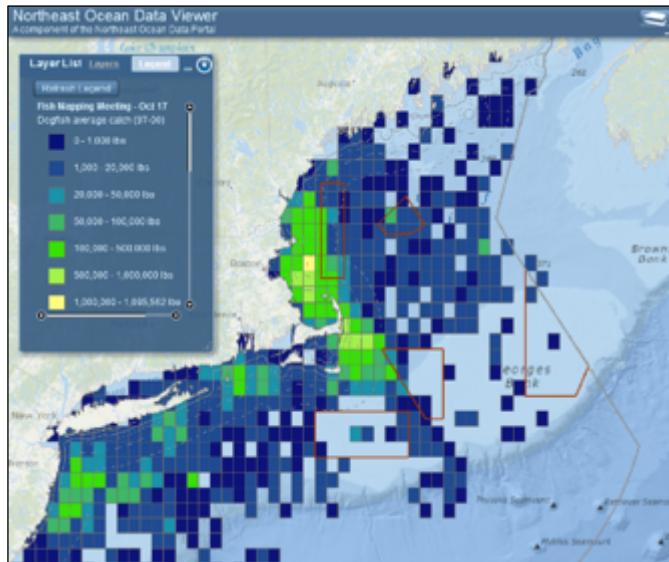
NROC 6:
Haddock Average Catch (97-09)



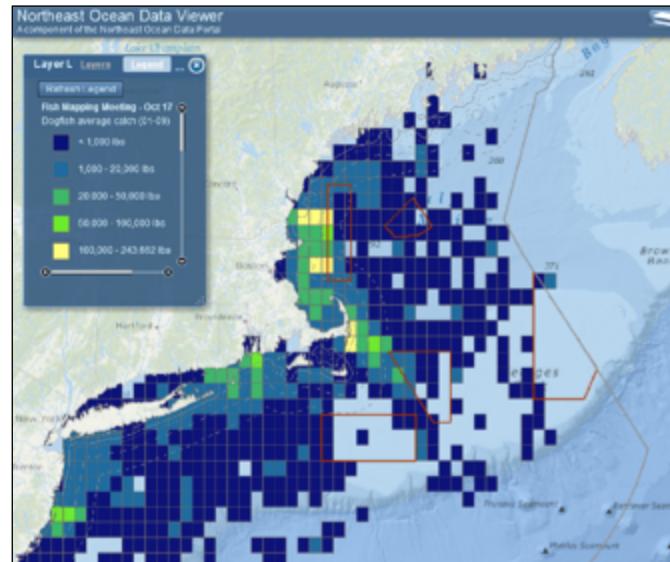
NROC 7:
Yellowtail Flounder Average Catch (97-09)



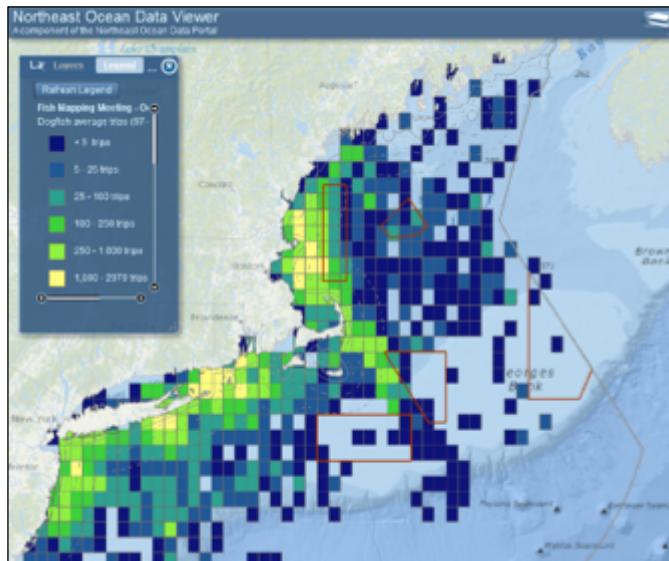
NROC 8:
Yellowtail Flounder Catch (2008)



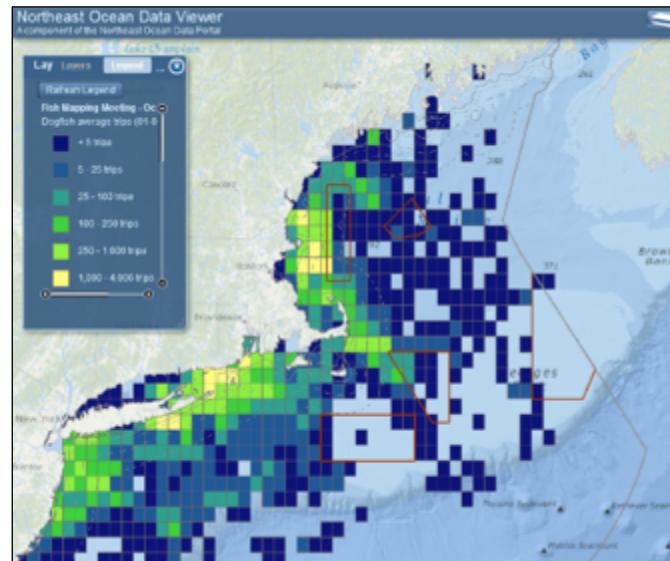
NROC 9:
Dogfish Average Catch (97-00)



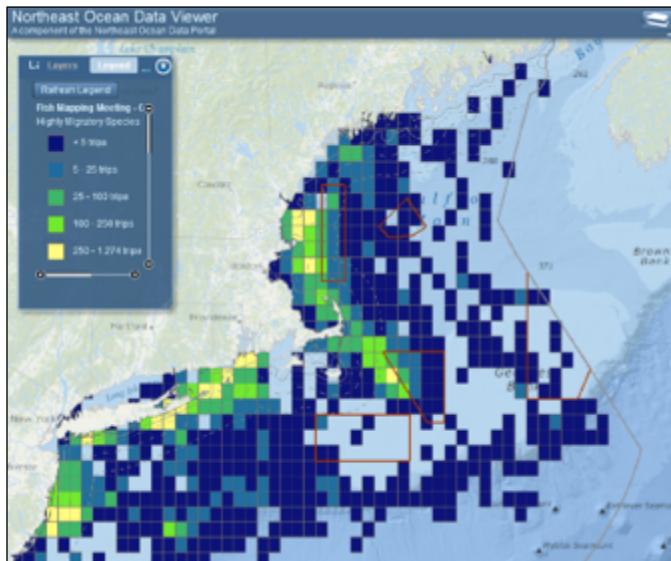
NROC 10:
Dogfish Average Catch (01-09)



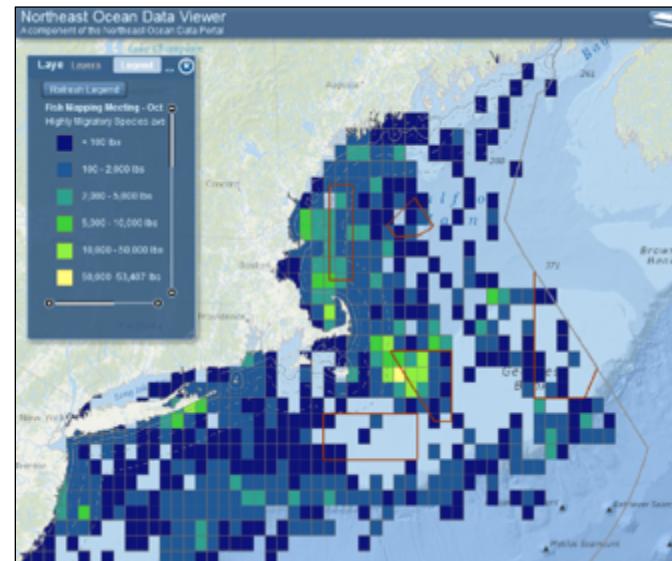
NROC 11:
Dogfish Average Trips (97-00)



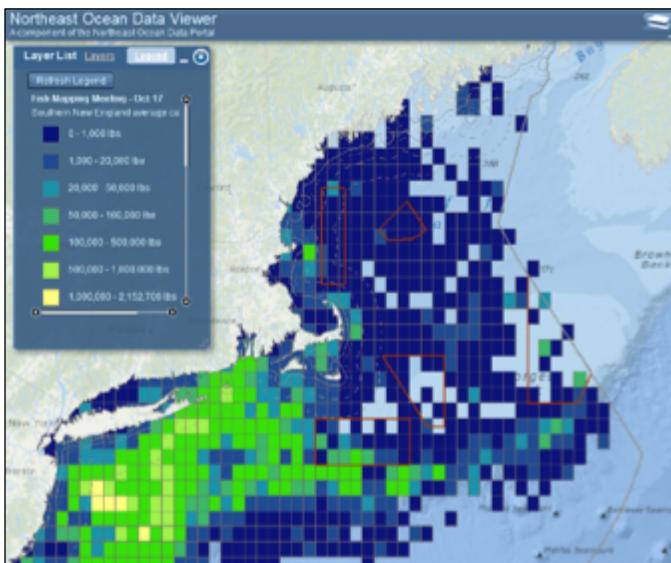
NROC 12:
Dogfish Average Trips (01-09)



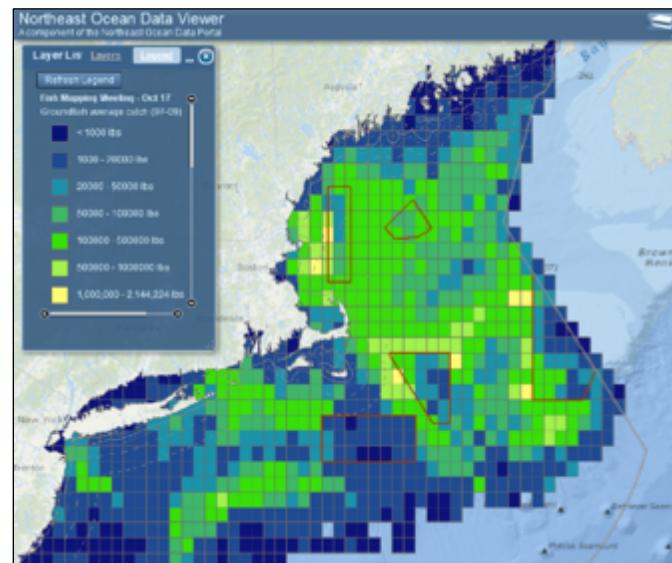
NROC 13:
Highly Migratory Species Average Trips (97-09)



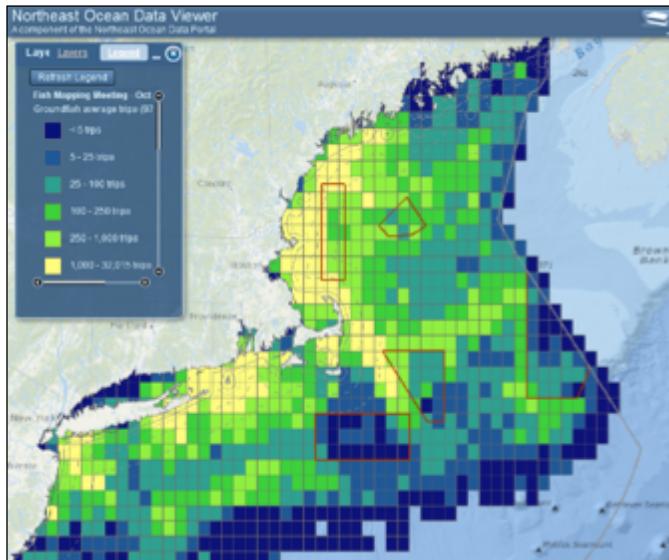
NROC 14:
Highly Migratory Species Average Catch (97-09)



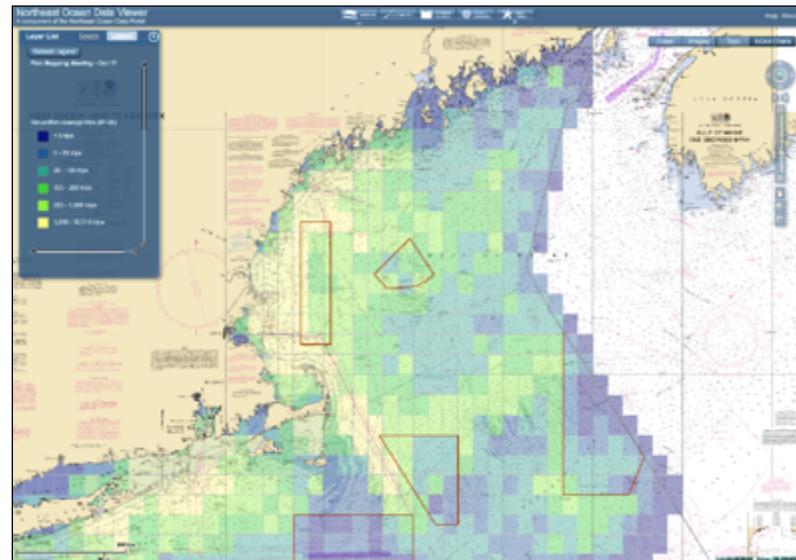
NROC 15:
Southern New England Average Catch (97-09)



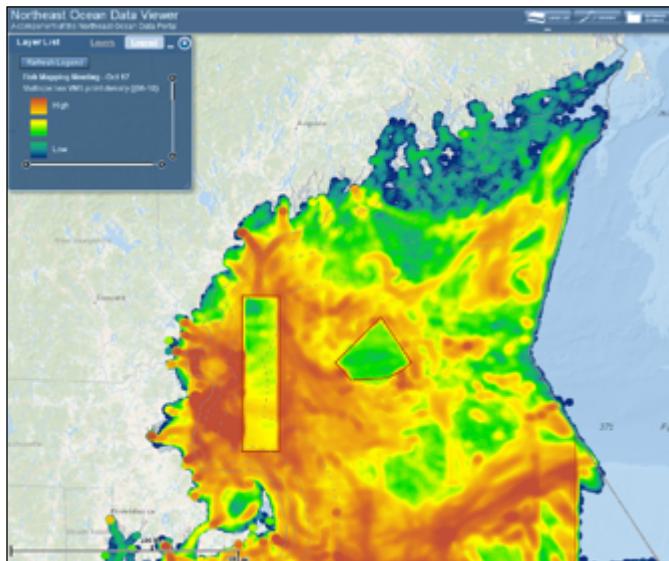
NROC 16:
Groundfish Average Catch (97-09)



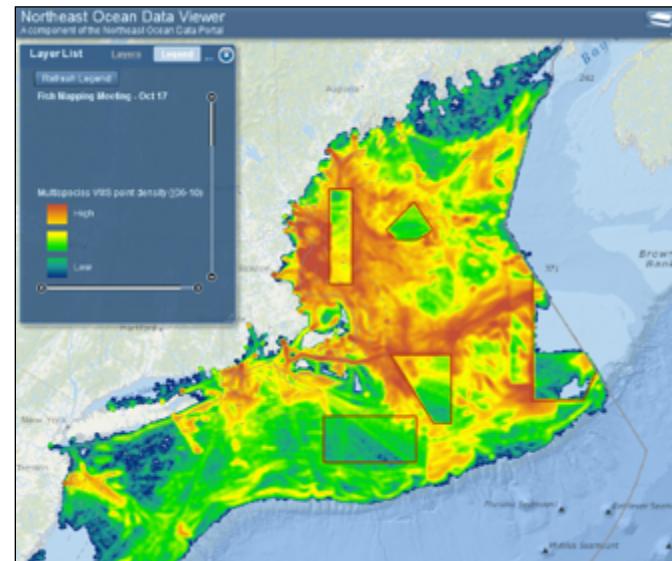
NROC 17:
Groundfish Average Trips (97-09)



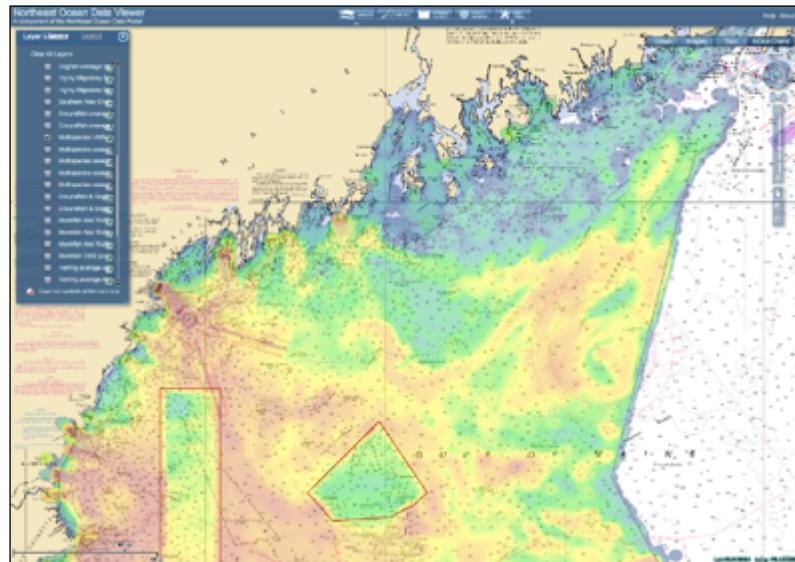
NROC 17B:
Groundfish Average Trips (97-09)



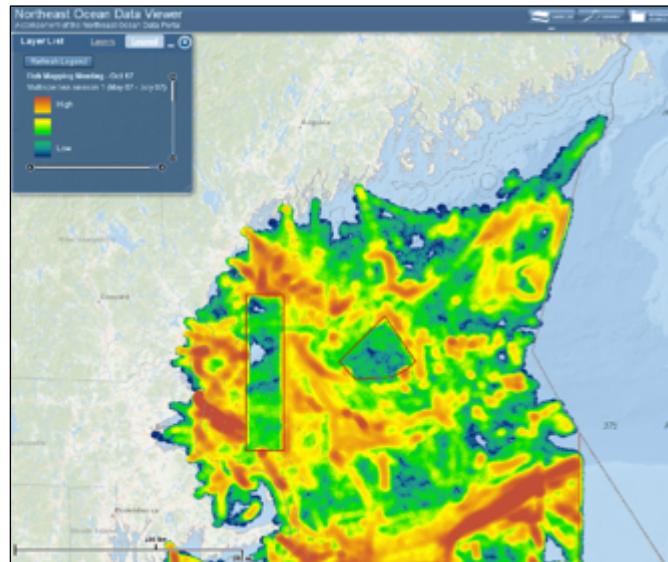
NROC 18A:
Multispecies VMS Point Density (06-10)



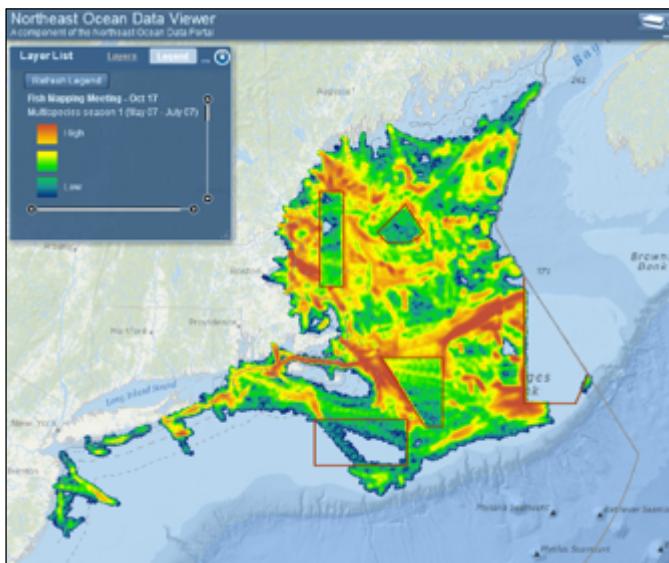
NROC 18B:
Multispecies VMS Point Density (06-10)



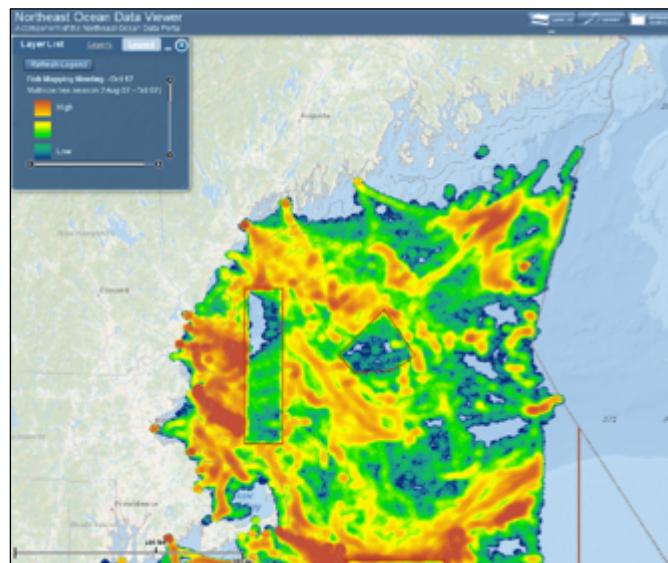
NROC 18B-2:
Multi-species VMS Point Density (06-10)



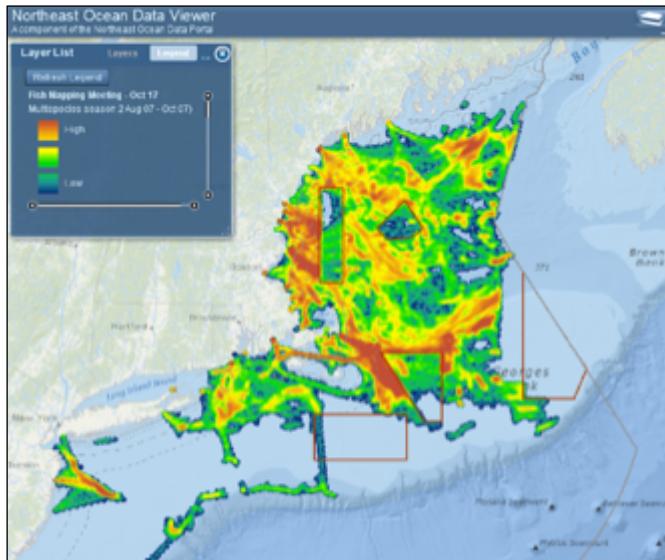
NROC 19A:
Multispecies Season 1 (May 07 - July 07)



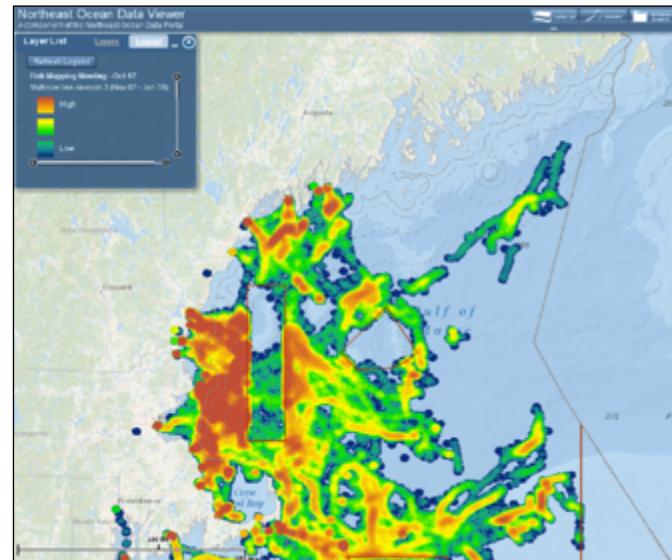
NROC 19B:
Multispecies Season 1 (May 07 - July 07)



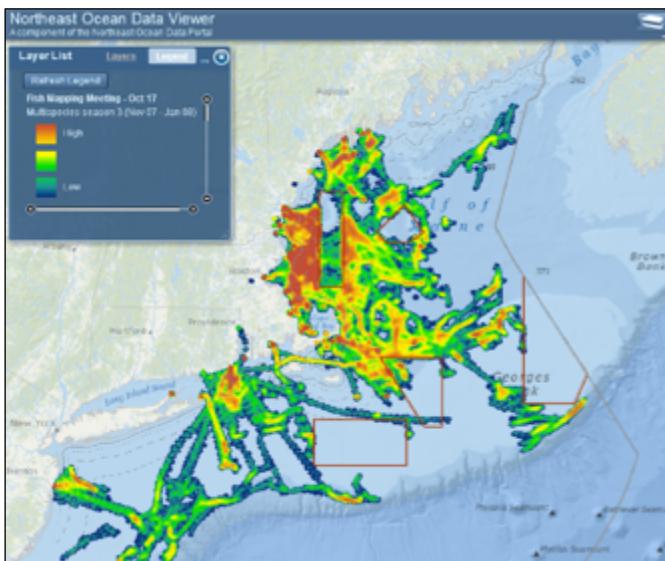
NROC 20A:
Multispecies Season 2 (August 07 - October 07)



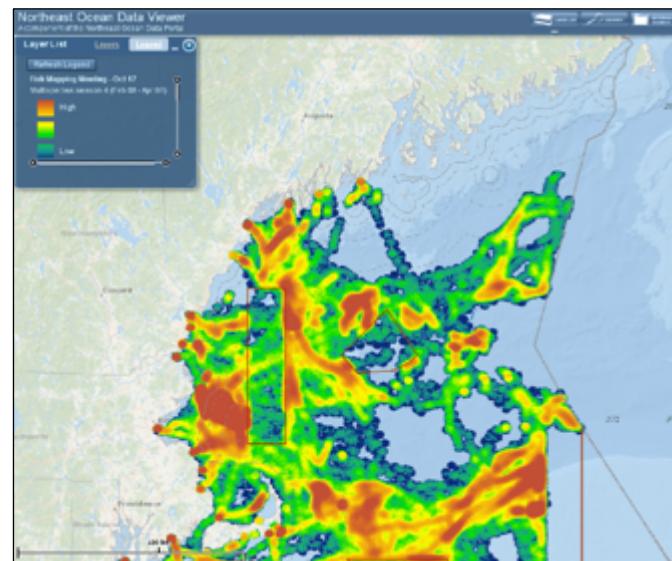
NROC 20B:
Multispecies Season 2 (August 07 - October 07)



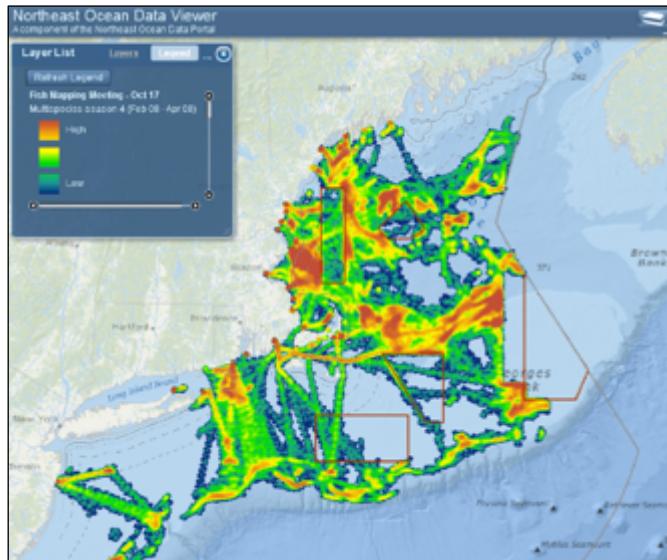
NROC 21A:
Multispecies Season 3 (November 07 - January 08)



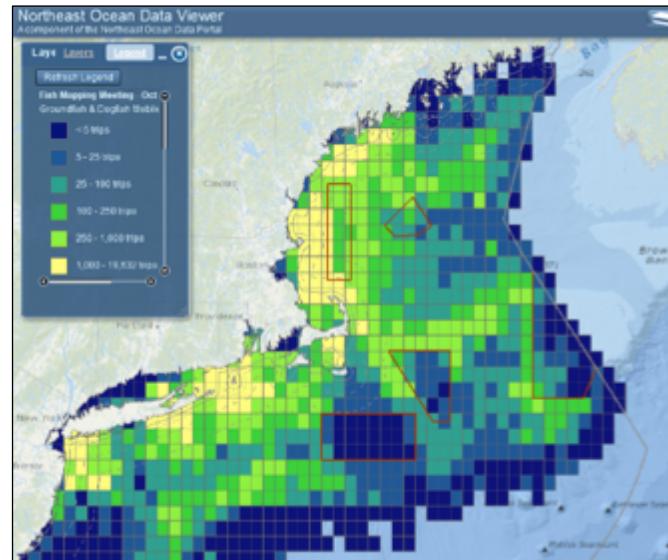
NROC 21B:
Multispecies Season 3 (November 07 - January 08)



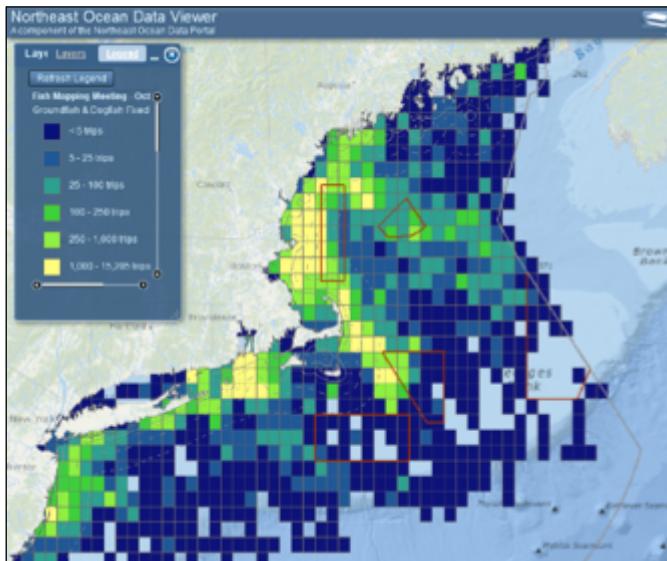
NROC 22A:
Multispecies Season 4 (February 08 - April 08)



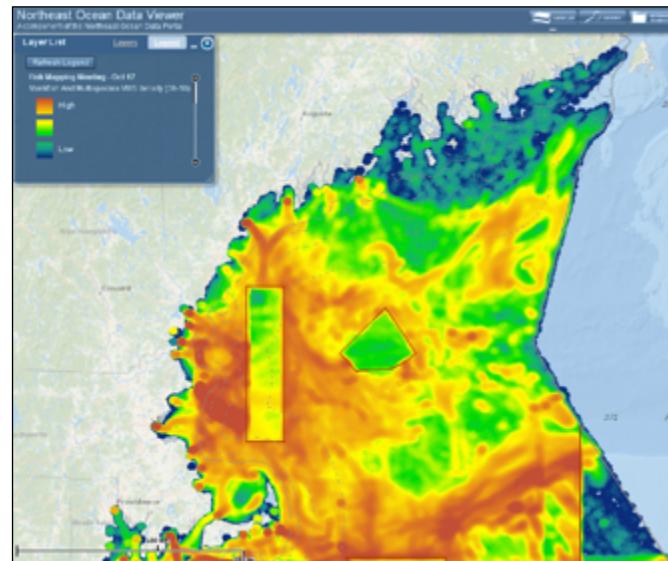
NROC 22B:
Multispecies Season 4 (February 08-April 08)



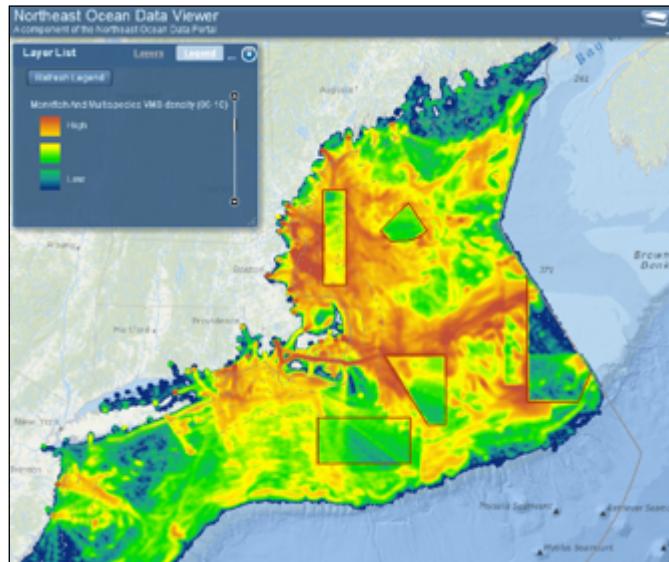
NROC 23:
Groundfish and Dogfish Mobile (00-09)



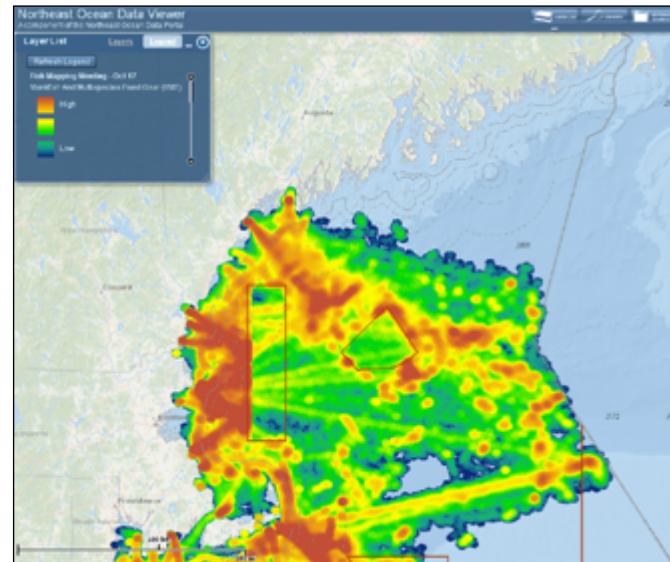
NROC 24:
Groundfish and Dogfish Fixed (00-09)



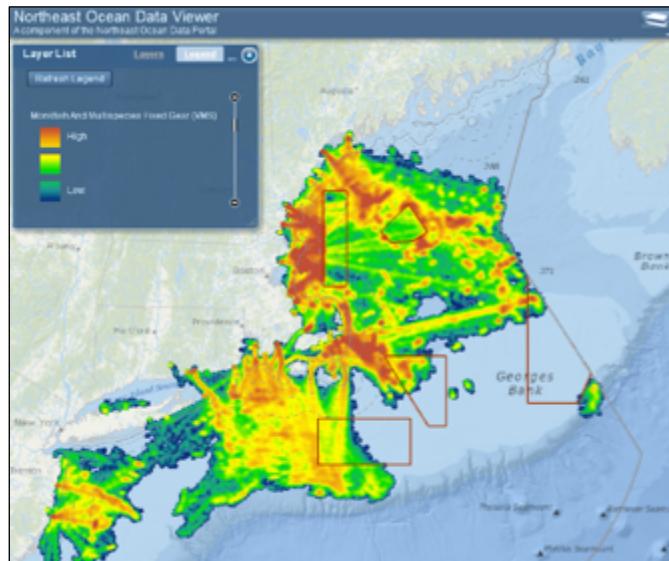
NROC 25A
Monkfish and Multispecies VMS Density (06-10)



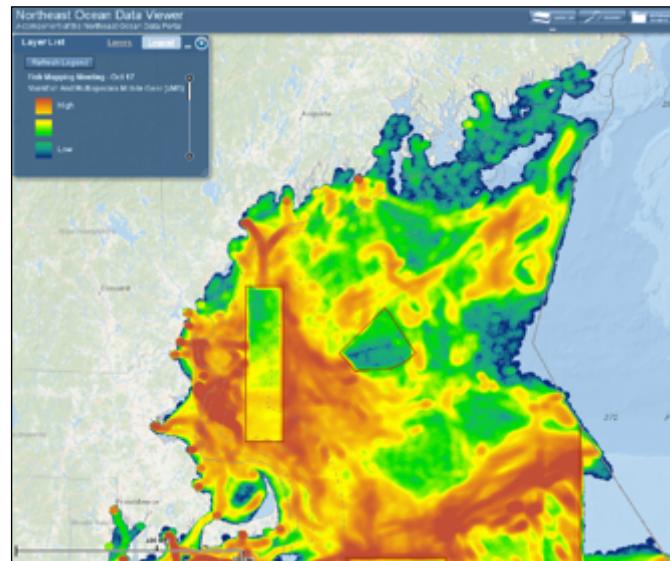
NROC 25B:
Monkfish and Multispecies VMS Density (06-10)



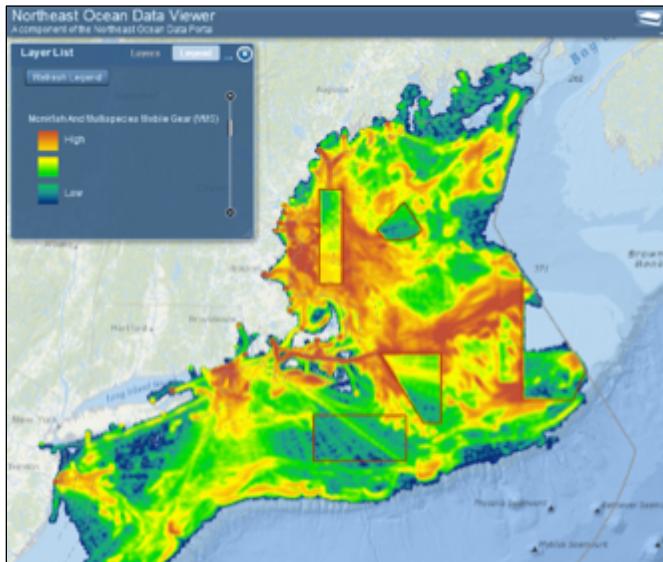
NROC 26A:
Monkfish and Multispecies Fixed Gear (VMS)



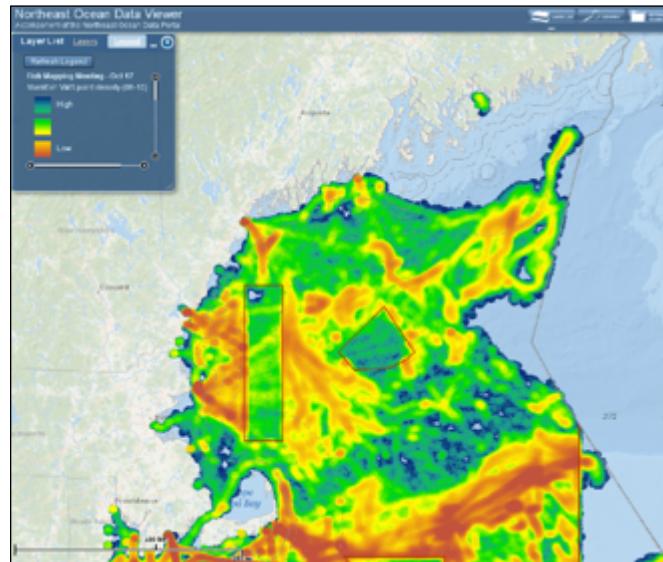
NROC 26B:
Monkfish and Multispecies Fixed Gear (VMS)



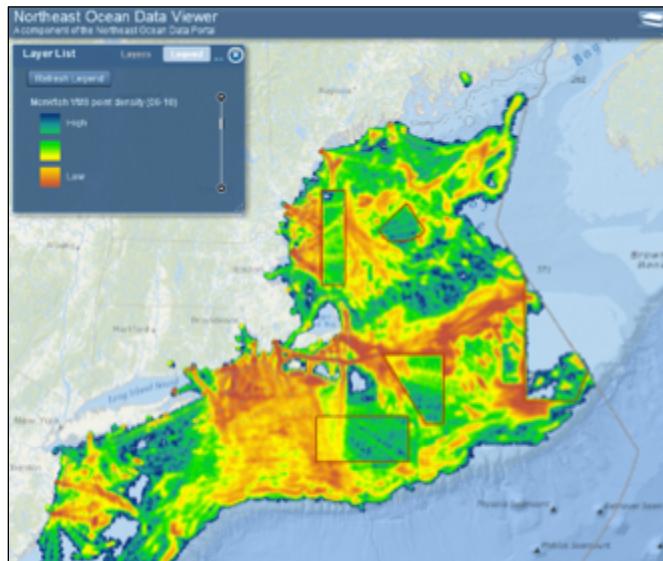
NROC 27A:
Monkfish and Multispecies Mobile Gear (VMS)



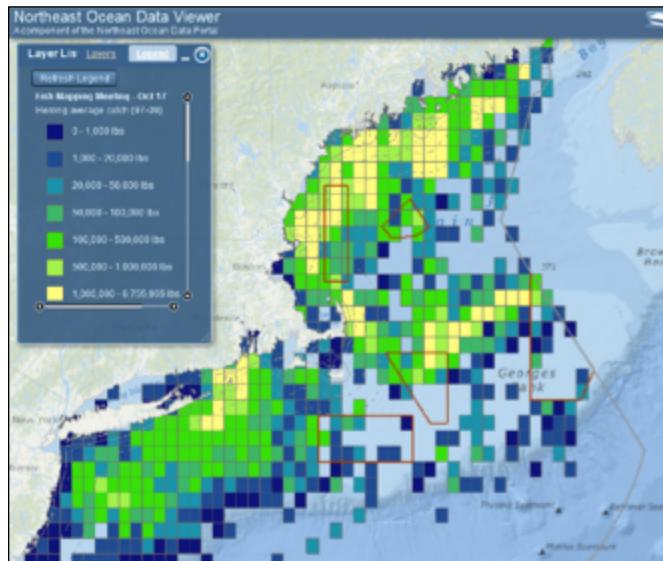
NROC 27B:
Monkfish and Multispecies Mobile Gear (VMS)



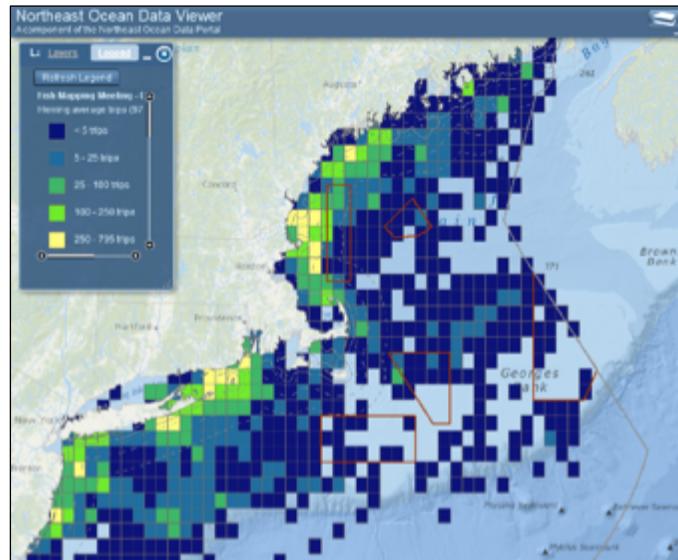
NROC 28A:
Monkfish VMS Point Density (06-10)



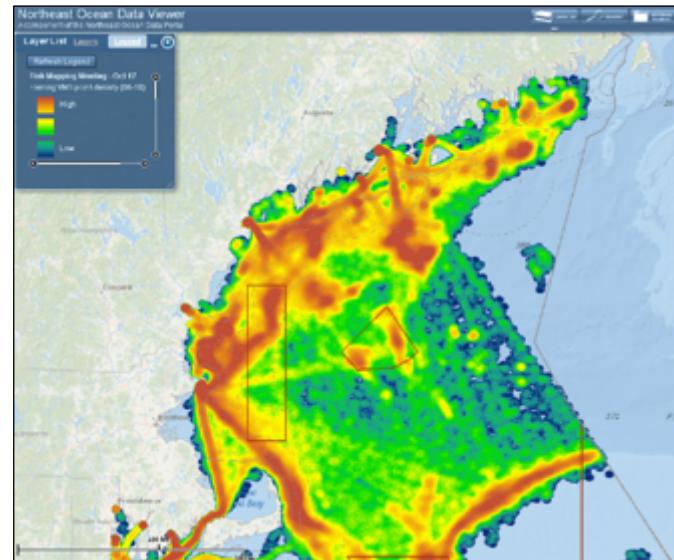
NROC 28B:
Monkfish VMS Point Density (06-10)



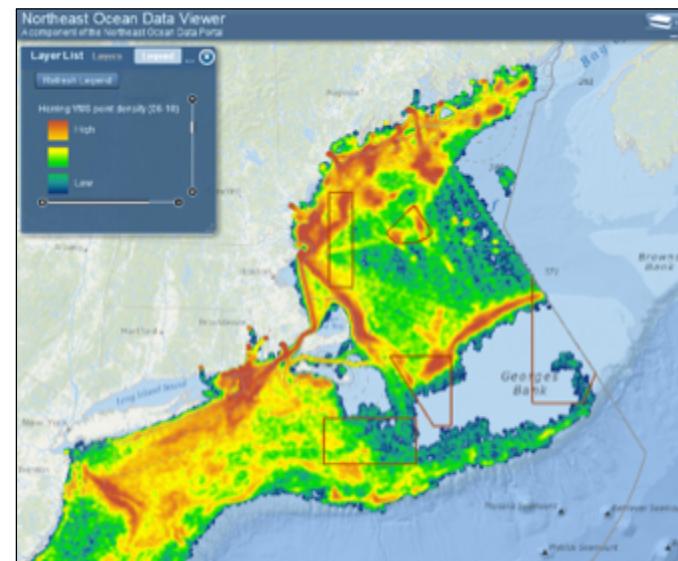
NROC 29:
Herring Average Catch (97-09)



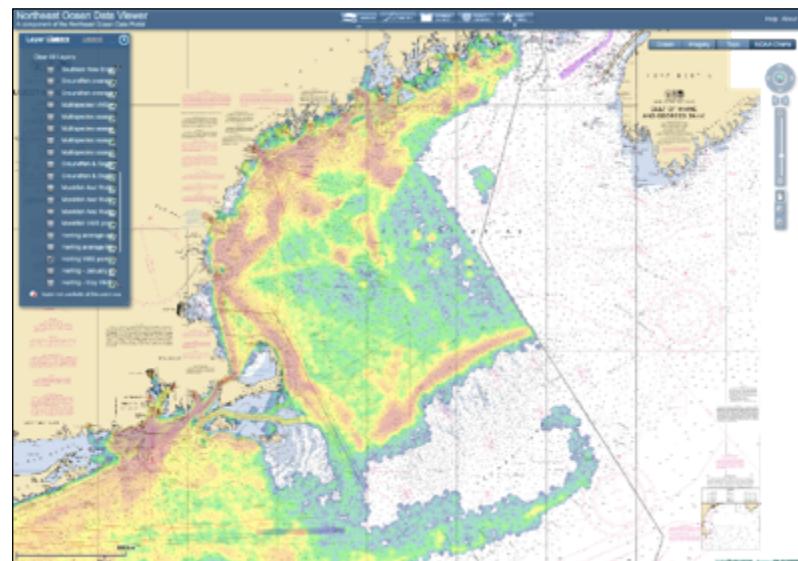
NROC 30:
Herring Average Trips (97-09)



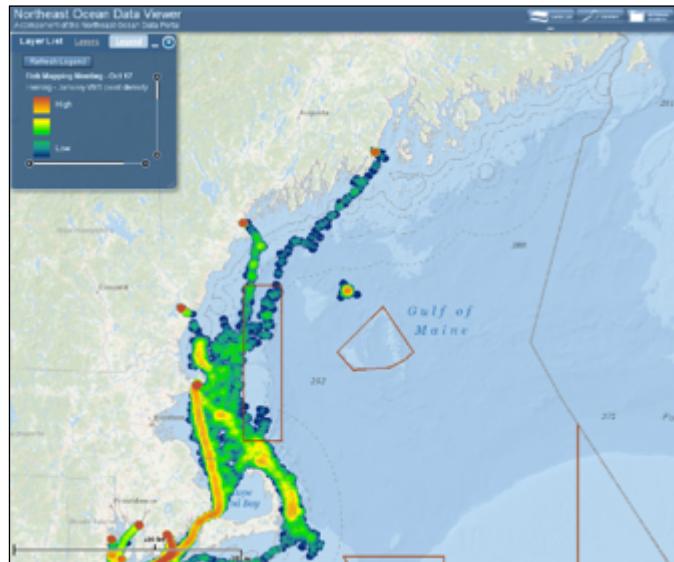
NROC 31A:
Herring VMS Point Density (06-10)



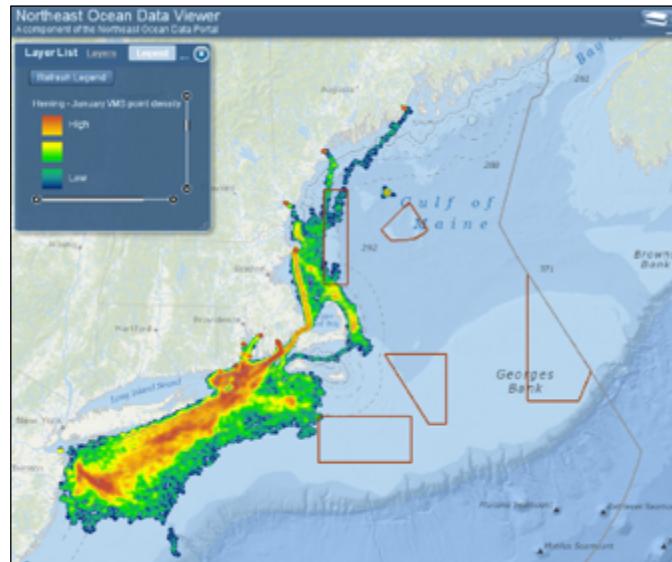
NROC 31B:
Herring VMS Point Density (06-10)



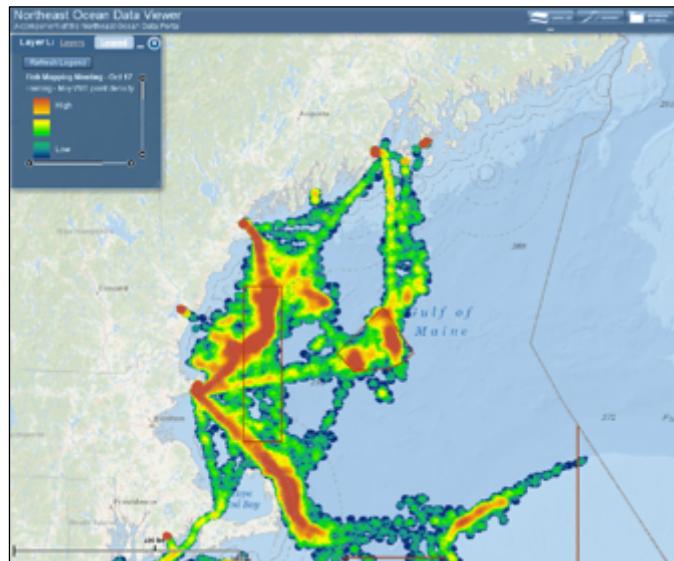
NROC 31B-2:
Herring VMS Point Density (06-10)



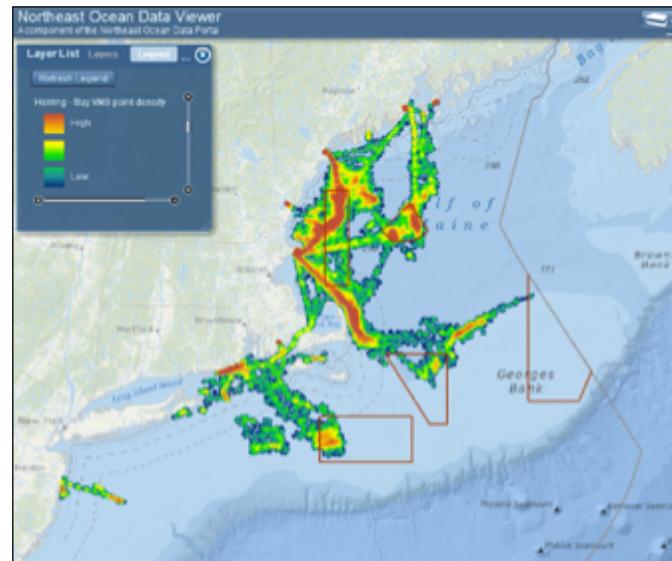
NROC 32A:
Herring January VMS Point Density



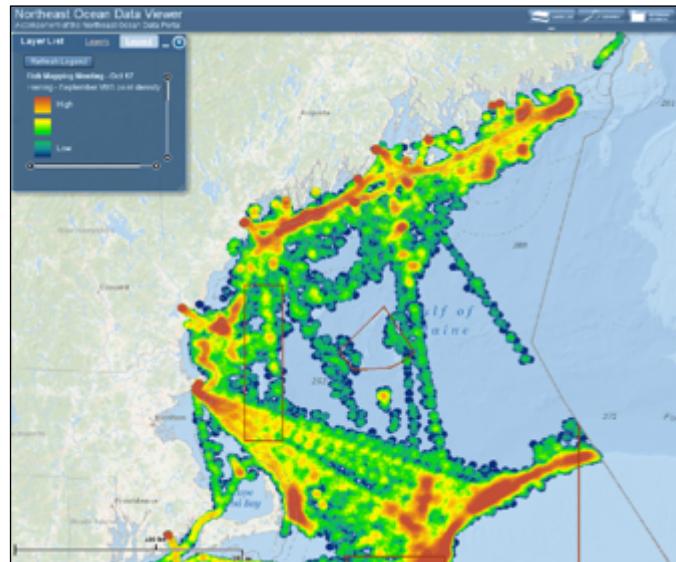
NROC 32B:
Herring January VMS Point Density



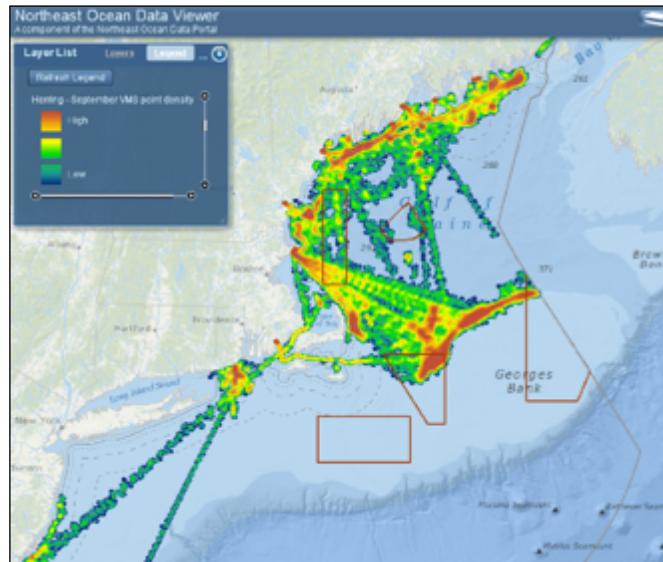
NROC 33A:
Herring May VMS Point Density



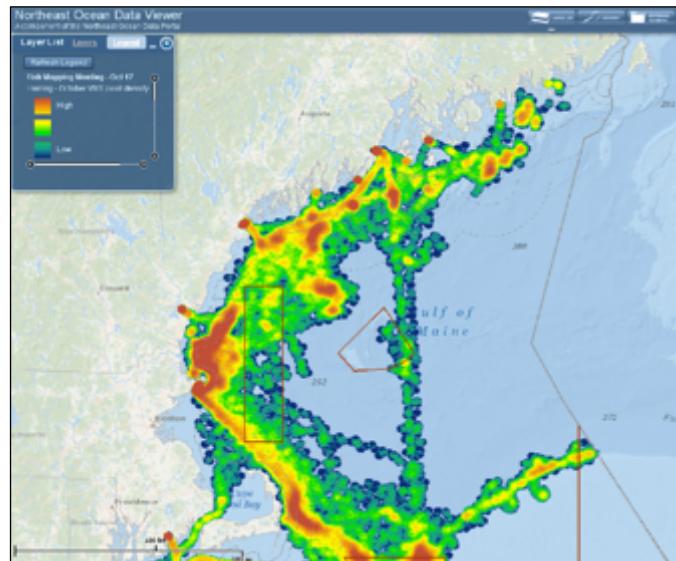
NROC 33B:
Herring May VMS Point Density



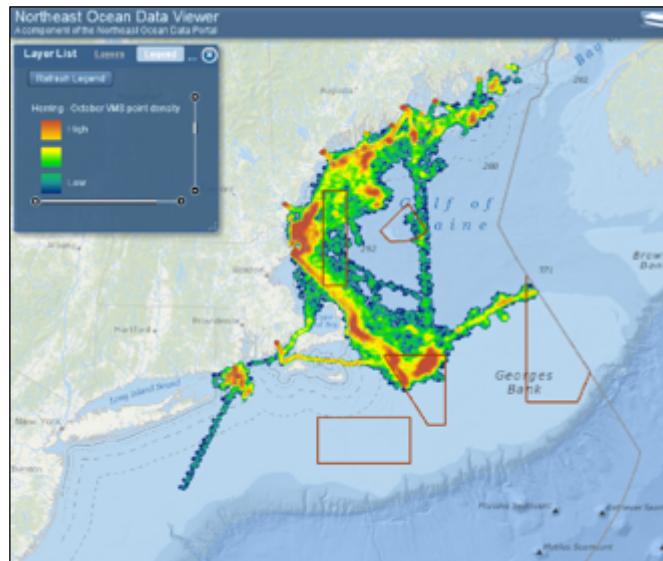
NROC 34A:
Herring September VMS Point Density



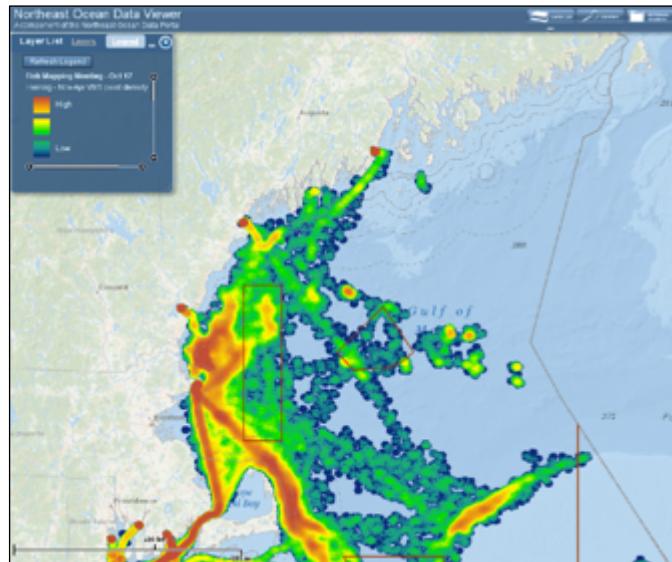
NROC 34B:
Herring September VMS Point Density



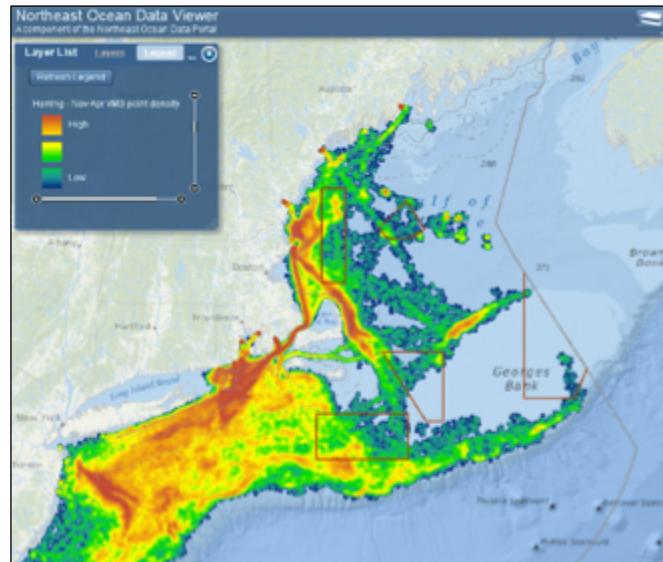
NROC 35A:
Herring October VMS Point Density



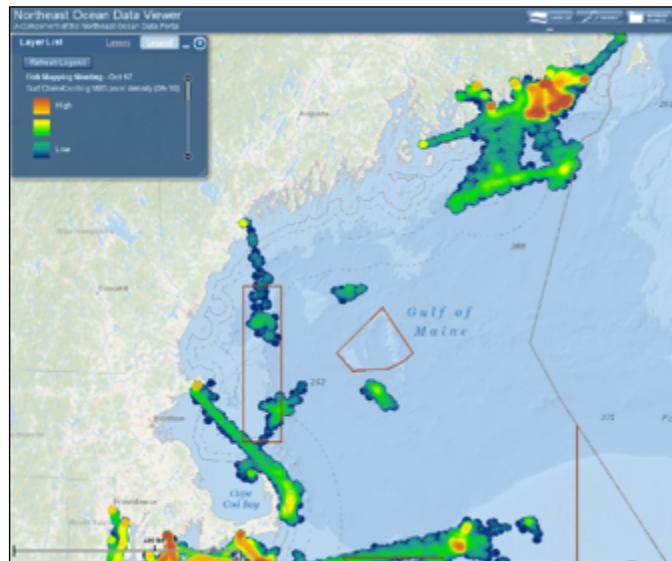
NROC 35B:
Herring October VMS Point Density



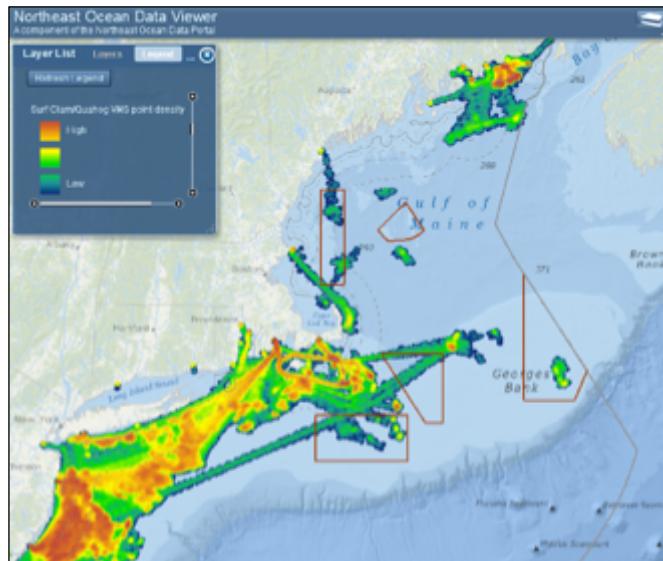
NROC 36A:
Herring November - April VMS Point Density



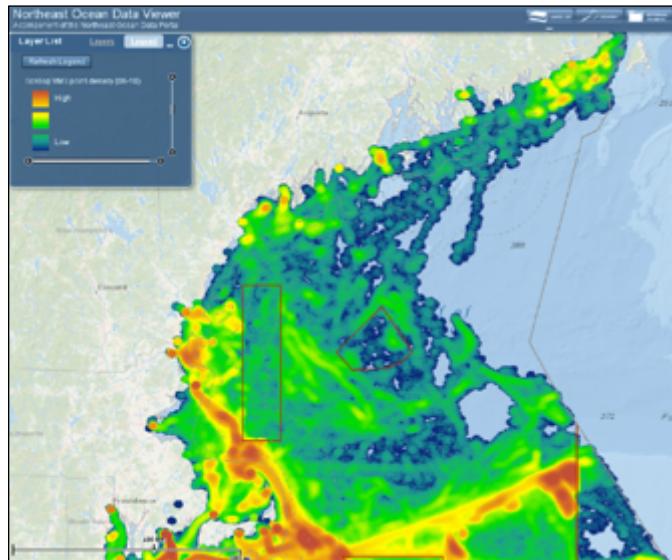
NROC 36B:
Herring November - April VMS Point Density



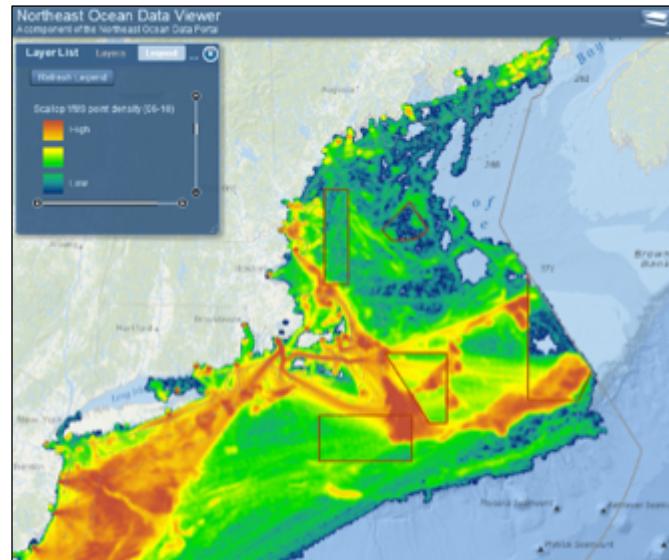
NROC 37A:
Surf Clam/Quahog VMS Point Density (06-10)



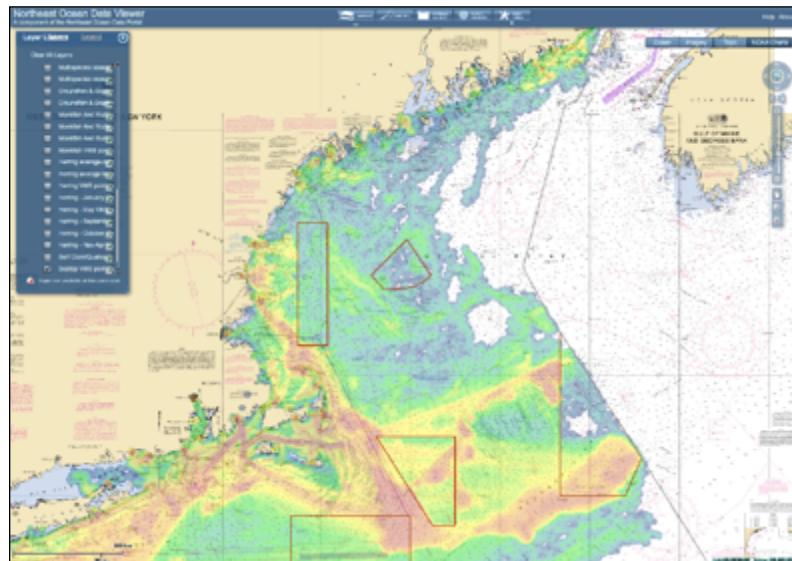
NROC 37B:
Surf Clam/Quahog VMS Point Density (06-10)



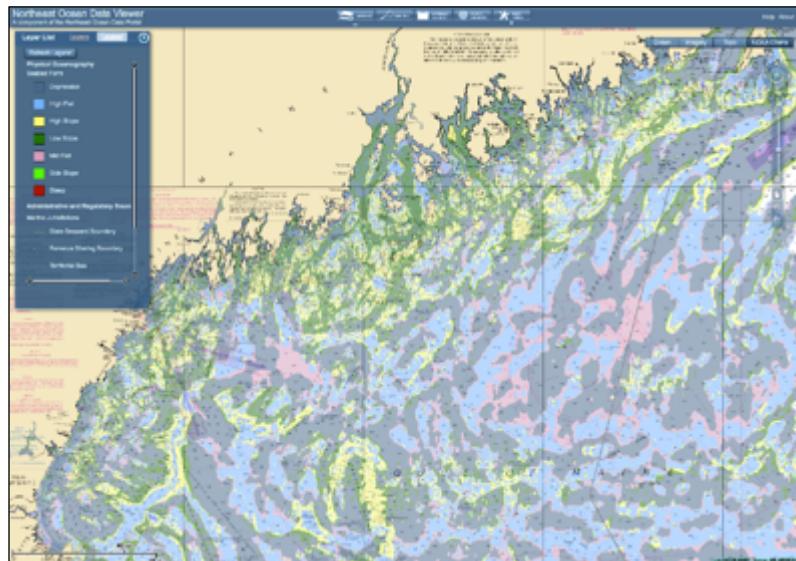
NROC 38A:
Scallop VMS Point Density (06-10)



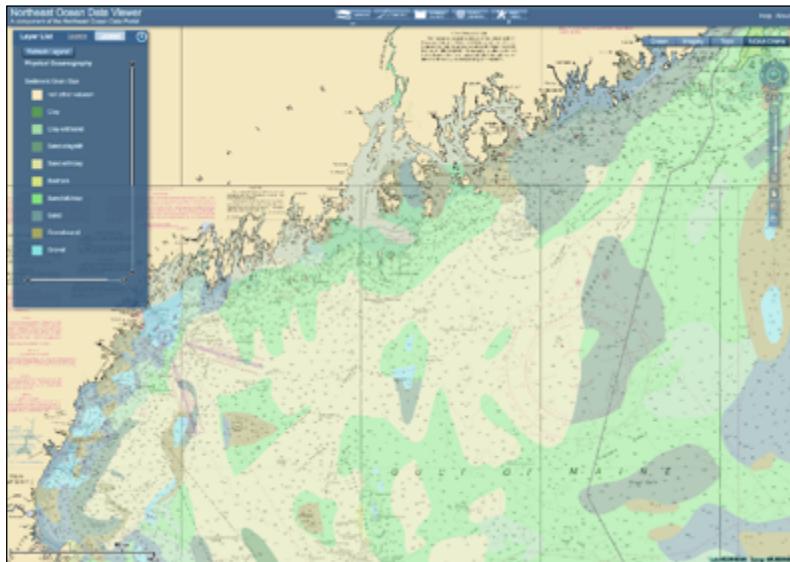
NROC 38B:
Scallop VMS Point Density (06-10)



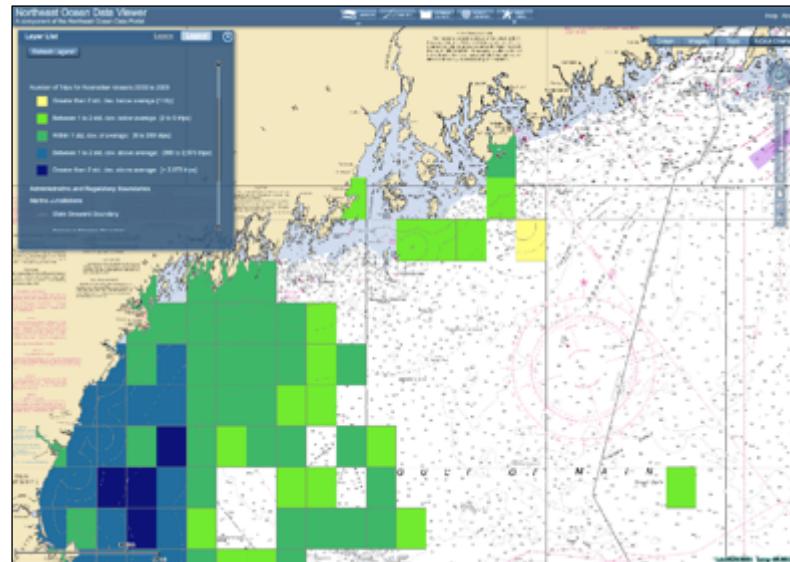
NROC 38B-2:
Scallop VMS Point Density (06-10)



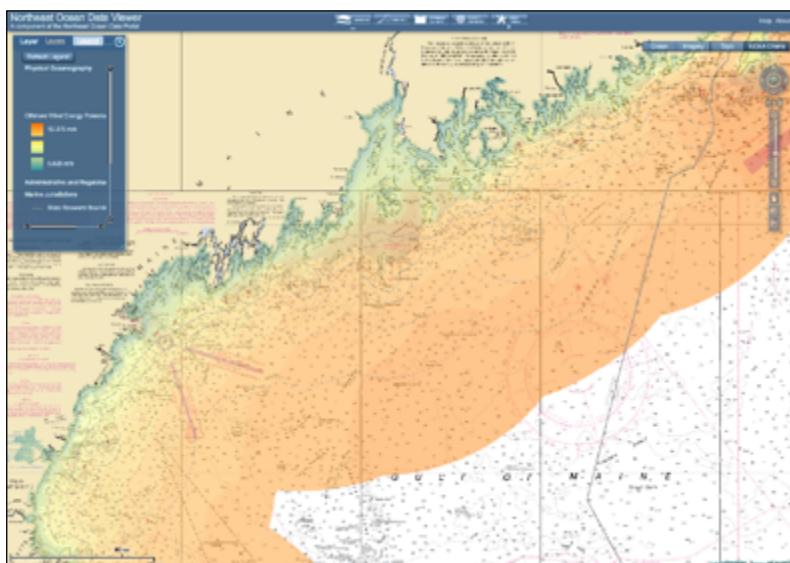
NROC 39:
Physical Oceanography Seabed Form



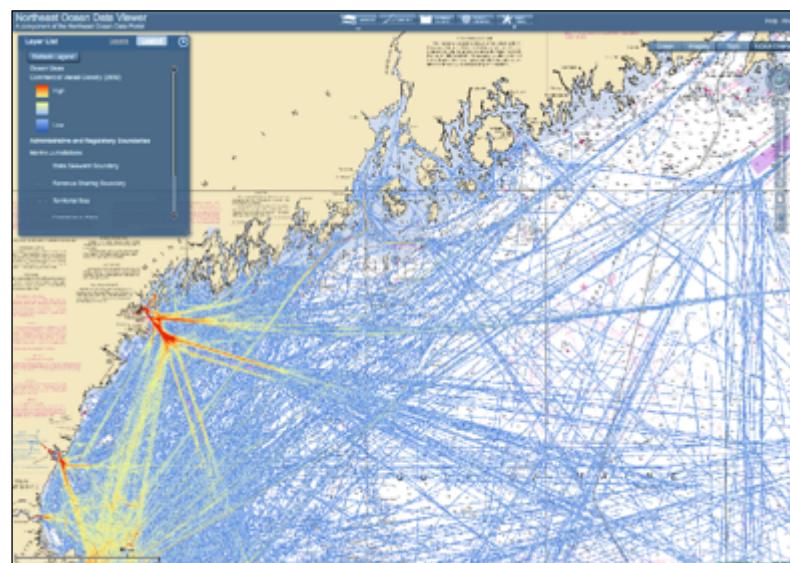
NROC 40:
Physical Oceanography Sediment Grain Size



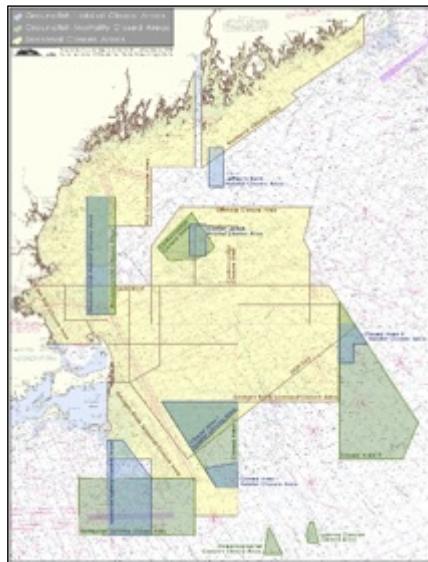
NROC 41:
Number of Trips for Recreation Vessels 2000 - 2009



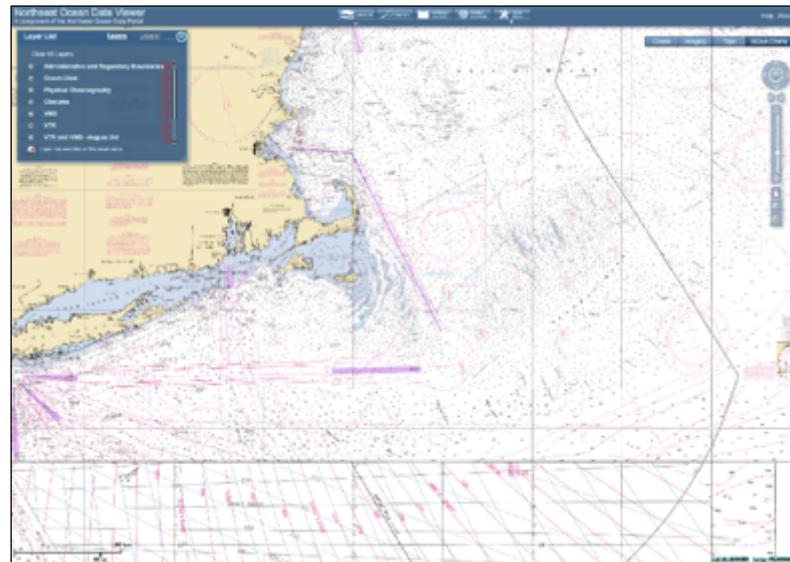
NROC 42:
Physical Oceanography Offshore Wind Energy Potentials



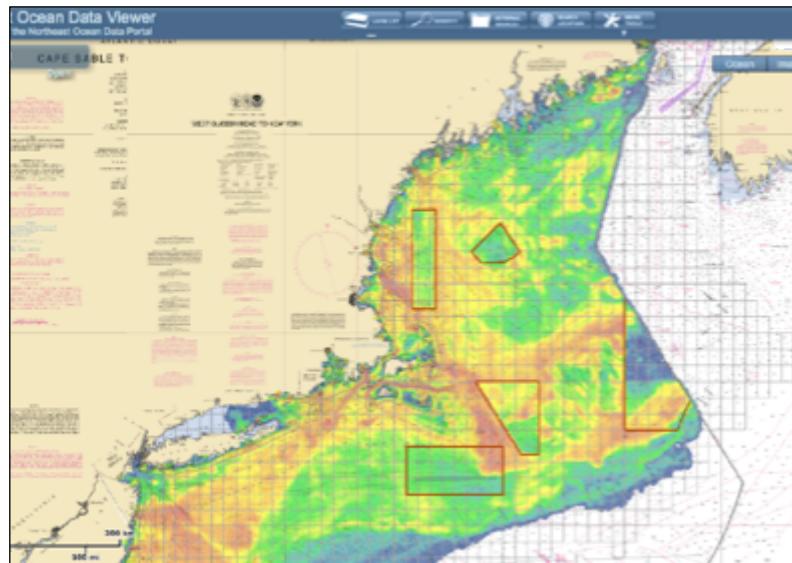
NROC 43:
Ocean Uses Commercial Vessel Density (2009)



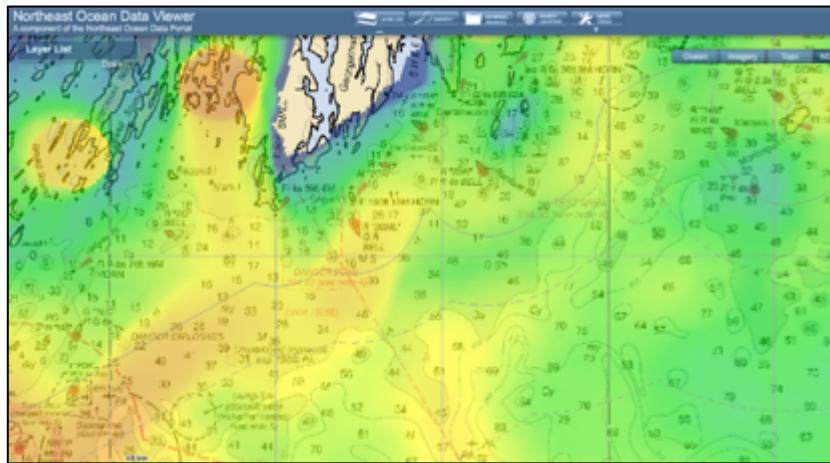
NROC 44:
Groundfish Habitat Closed Areas



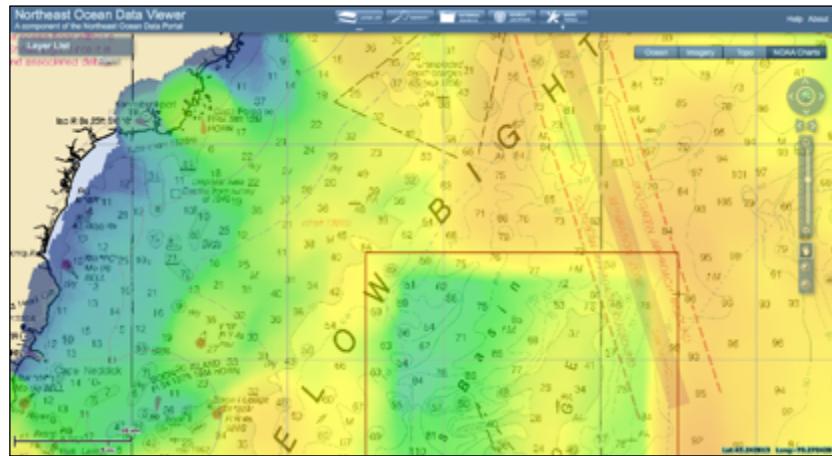
NROC 45:
George's Bank Area Chart



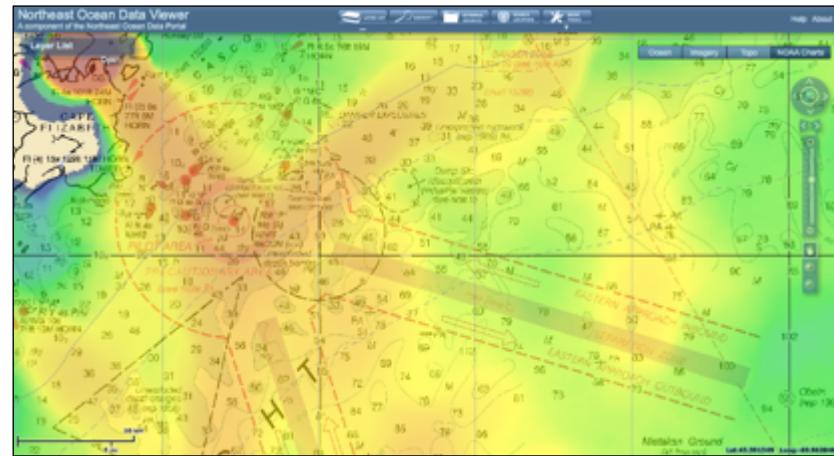
NROC 46:
All VMS with Squares



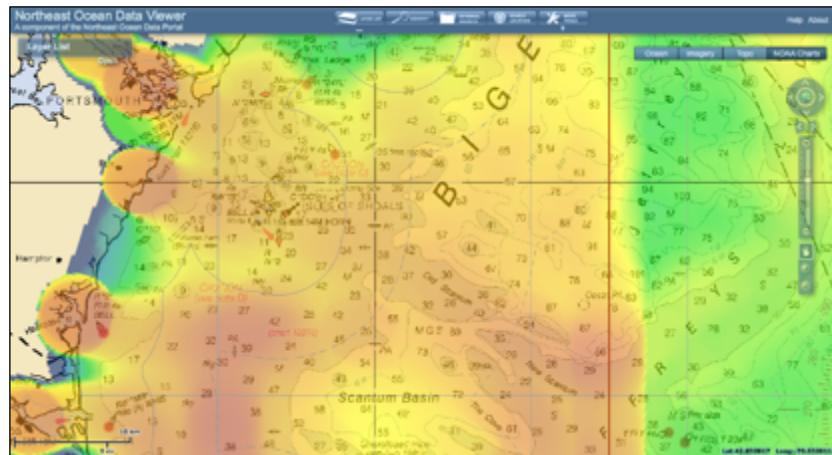
NROC 47:
All VMS Portland North



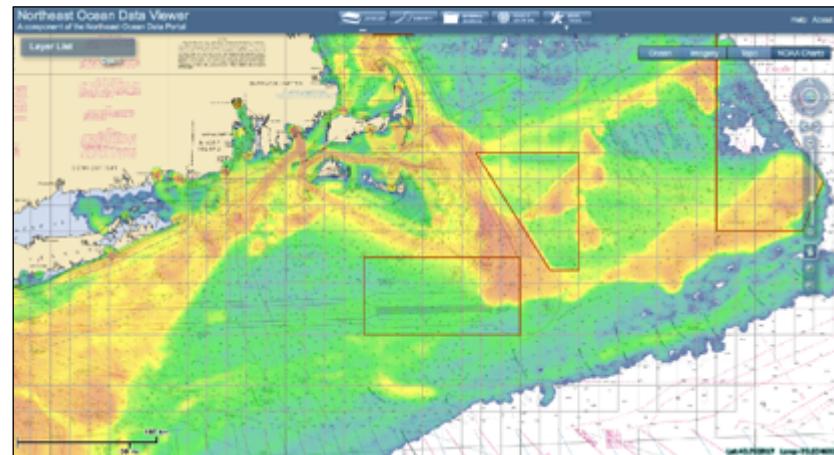
NROC 48:
All VMS Portland South



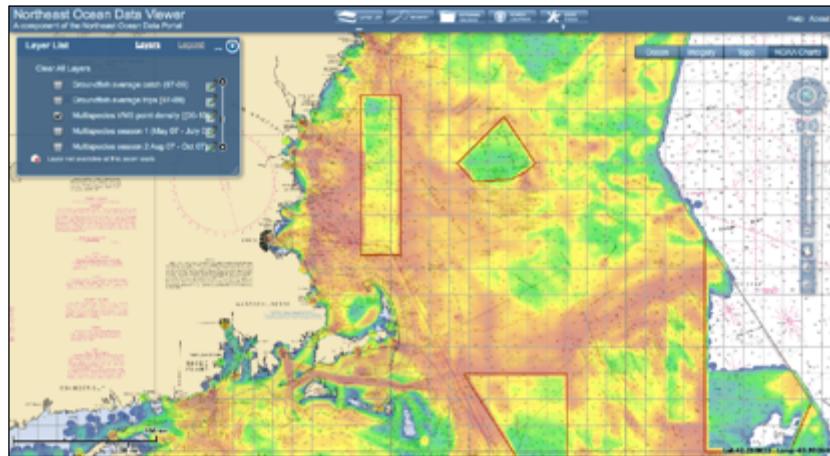
NROC 49:
All VMS Portland



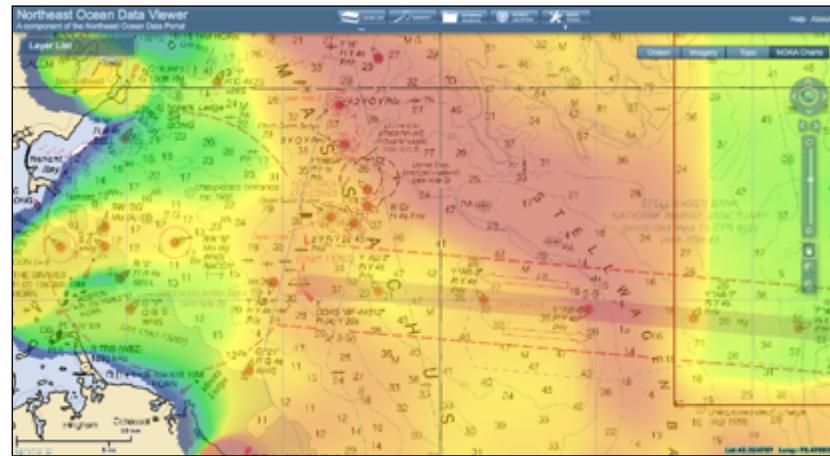
NROC 50:
All VMS Portsmouth



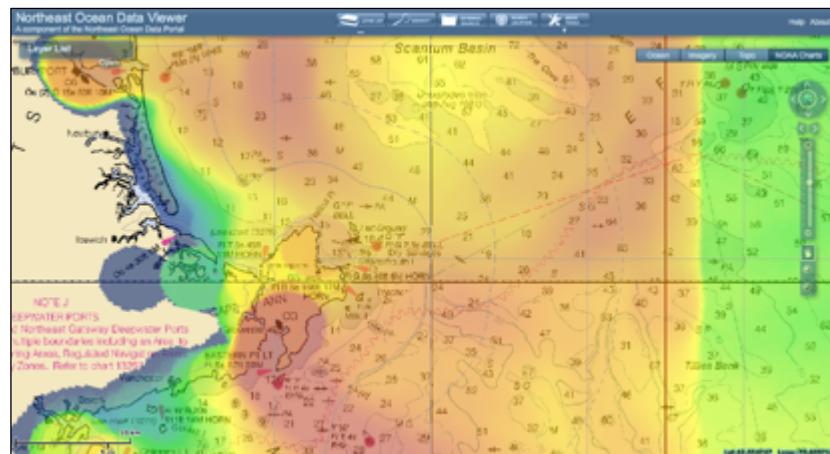
NROC 51:
Scallop VMS with Squares no PWD



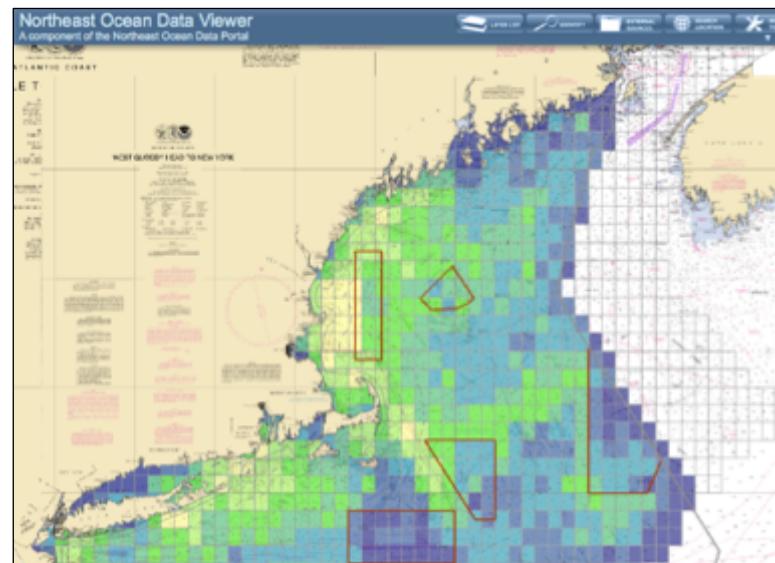
NROC 52:
Multispecies VMS with Squares



NROC 53:
All VMS Gloucester South



NROC 54:
VMS Gloucester North



NROC 55:
VTR Groundfish Trips New Category

Positive Comments	Skepticisms	Skepticisms	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions
OVERALL: Maps show broad use patterns that can be refined later.	CONFIDENTIALITY: Fishermen do not want to share their fishing locations.	VTR: VTR data is not necessarily accurate regarding fishing locations. Some groundfish boats misreport where fish are actually caught to avoid hitting quotas of "choke" species.	OVERALL: Some participants felt that the project needs to take various perspectives (i.e., inshore/offshore) into account.	DATA: Resource distribution should be shown on the maps.	DATA: The addition of pollock and redfish maps would be helpful.	OUTREACH: Remind fishermen how their input successfully aided the SAMP effort in RI.
OVERALL: There is general support regarding the project; participants feel it is good to document fishing activity so future ocean users can take this into consideration.	CONFIDENTIALITY: Logbooks are considered proprietary information, and fishermen are often unwilling to share their contents.	DATA: Some participants felt that the project's recreational fishing data represents for-hire vessels, not private/charter vessels. It was suggested that this distinction be made in the metadata.	PROJECT PURPOSE: An extensive outreach campaign is needed to provide a clear and realistic message about the project's goals and limitations.	DATA: One source cited willingness to provide RI state logbooks if additional data is needed.	DATA: Map historical fishing areas that are not currently in use (e.g., shrimp fishing in northern part of Western Gulf of Maine closed area).	OUTREACH: Be honest with fishermen and realistic about how their input will be used and incorporated (if at all).
SCALE: 10' squares are an adequate scale comparison to other efforts; it may be difficult to get finer resolution data.	CONFIDENTIALITY: Although the CT DEP showed 2011 Commercial/Party Charter fishing data, it was concerned about sharing this information due to confidentiality (<i>example:</i> Menhaden landings were 30,000 pounds, all from one company).	FUTURE USE: Almost all areas are used by everyone at some point; that is the greatest problem in assessing future use.	PROJECT PURPOSE: Participants cited a need to set this project apart from others by incorporating its work into management measures.	SCALE: Some participants would like to see a finer scale for recreational maps.	DATA: Current VMS maps don't capture point/time data. There was interest in obtaining historic VMS data (prior to 2006); however, would cost \$100-200 per month to obtain.	OUTREACH: One participant sees the utility of these maps as related to science and management decisions. He suggested that others be urged to comment in a timely manner.
DATA: NROC should consider using tuna maps generated by the Island Institute.	PROJECT PURPOSE: Some fishermen were concerned that information provided through this process might be used against their industry in the future.	FUTURE USE: There was concern about how wind energy in the Gulf of Maine might impact MACC members.	APPROACH: Lay out all the information available, identify data gaps, and create solutions on a gap-by-gap basis.	SCALE: It was suggested the project team ask fishermen what scale is appropriate in terms of displaying their particular fishery.	DATA: Some participants felt that VTRs are only marginally accurate.	FUTURE USE: Concern was cited about liquefied nitrogen gas (LNG) being a potential use issue.

Positive Comments	Skepticisms	Skepticisms	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions
ANALYSIS: It would be optimal to combine many different datasets; biological, geological, and physical layers can help create a broader historical picture.	PROJECT PURPOSE: Some participants were disillusioned and skeptical about the intended use of the maps, and of the overall project.	FUTURE USE: There was concern that this process is laying the groundwork to determine suitable wind farm locations.	APPROACH: Involve fisheries management staff from each state, since they can provide the best information to aid mapping efforts.	ANALYSIS: Have users rank areas of fishing activity in order of importance.	DATA: One source cited willingness to provide CT data as needed, included trawl survey logbooks and state areas for fishing locations.	FUTURE USE: Effects from Hurricane Irene dramatically changed the area where one participant fishes. He feels the scallop harvest may return to pre-storm levels within three years, but that weather events probably do more to harm stocks than fishing. It was suggested to overlay storm patterns and information on fishing maps.
VMS: When participants examined the VMS maps of groundfish, scallop, herring, and the composite of all VMS fisheries, the sentiment was "you've got it pretty good."	PROJECT PURPOSE: Are efforts being duplicated? Some fishermen felt there would be redundancy working with NROC/RPB when they already work with NMFS and councils.	FUTURE USES: There was concern about cable interference from alternative energy structures.	APPROACH: Link with NEFMC to understand what they are doing and how their efforts this will affect future ocean use by fishermen. Also, it's important to examine the parallels between this work and the NEFMC Habitat Committee – balancing habitat with areas the Council wants to use.	ANALYSIS: Examine high fishing activity compared against high revenue areas – why are they different?	DATA: One participant would like to contact several "bait/skate" fishermen who fish inshore to have them examine the maps. This is an example of a heretofore unrepresented group whose livelihood is tied to a fishery and warrants inclusion.	ANALYSIS: Overlay all fishing activity on a single map, and it would show that available ocean space is limited.
VMS: Groundfish activity was captured well; scallop maps were very accurate.	PROJECT PURPOSE: An undefined purpose for maps is a problem; have each one address a specific issue.	EXISTING USE: Responsiveness from large shipping outside The Safety Zone (TSZ) is an ongoing problem.	APPROACH: Use blank charts to ask participants to document areas of historic fishing effort.	ANALYSIS: It was suggested that Catch Per Unit Effort (CPUE) be derived from VTR data and displayed on a single map. That way, inherent bias for one fishery over another is avoided.	DATA: NMFS confidentiality rules hamper fisheries managers' ability to look at all data; NROC might want to comment on these rules during the open comment period.	
VMS: Participants stated that the project's VMS maps provide a more accurate representation of fishing in the Stellwagen Bank National Marine Reserve than the information NOAA used to determine the restricted use area in the same region.	PROJECT PURPOSE: There was concern that Maine Lobsterman's Association (MLA) maps/data could be used against the organization, particularly by parties with the capability to manipulate the data to shift the outcome in discussions about whale protection and lobster management.	EXISTING USE: There was concern that the fishing lanes are varied from Portland south, that there are variable choice of lanes off Cape Ann, and that people are "spread out."	APPROACH: One participant felt this effort should be approached after new Council regulations take effect (May 2013). He stated concern that "groundfish guys who can't fish anymore will come to RI and start squidding."	ANALYSIS: Use point density to identify fishing locations; review the data annually and composited over time to identify historic and emerging trends.	DATA: It was suggested that inshore data be included in the maps. MA and NH have this information; obtaining it from ME could be challenging.	

Positive Comments	Skepticisms	Skepticisms	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions	Neutral/General Suggestions
VMS: Point density was useful in showing high and medium use areas as well as transit.	VTR: Some participants feel that VTR is "useless," that data sets don't reflect where people fish and aren't used in fisheries management. It was also acknowledged that they may be useful in the long term to show spatial use of broad areas.	DATA: Some participants cited that Maine scallop data looks "weird."	DATA: Know the limits of the data being used (i.e., missing species, underrepresented species, metadata issues, qualifiers on tow data, etc.).	ANALYSIS: Filter VMS data based on differential speed between towing and transit (3.5 to 4 knots cutoff for fishing/transit).	DATA: Some fishermen are collecting their own data. They should be asked if they're willing to share it.	
VMS: Overall consensus was that VMS looks good. The project should potentially find a way to distinguish between transit and fishing activity by using different colors.	VTR: VTR data has been off by 30% and isn't useful in fisheries management	DATA: MLA data is coded to harbor, only represents one year and provides a sense of gear density, not catch or value. The data does not capture "out-of-state guys coming in from Area 3."	DATA: Fishing activity, habitat, and survey information are all needed to accurately identify and map fisheries use in New England.	ANALYSIS: Speed of 4 knots or less is widely considered fishing, while speed of over 4 knots is considered transit. Overlay depth and VMS with contour line use can be indicators of fishing (deeper than 15 fathoms is a scallop groundfishing indicator). When transiting is parsed from data sets, there are different steaming speeds for dragging and gillnetting. Gillnetters stop and go more to pull nets, whereas draggers maintain a more uniform speed when towing.	DATA: Incorporate study fleet data.	

All Regions				
"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
"Catch" versus "effort" VTR maps display different bias (inshore v. offshore). This information needs to be balanced.	On VMS maps, the cluster of groundfish activity inside the demarcation line denotes where people sort their catch. It does not count against the clock.	Maine Association of Charter Boat Captains (MACC) members concentrate on groundfish, tuna and herring as bait catch.	Monkfish day trips are also represented under multispecies day trips. If combined as such, they do not paint an accurate portrait of monkfishing effort.	VMS polls groundfish boats every 60 minutes, and polls scallop boats every 30 minutes.
Upon quick review, recreational maps appear to be incorrect, with many flounder and drag grounds.	Recreational fishing is localized, with the farthest efforts occurring within 50 miles of the shoreline.	All fishing grounds are important in terms of mobile gear use.	Transit lanes remain a problem in all VMS fisheries. They are important in their own right. With the addition of lobster, the entire area seems covered.	For-hire recreation vessels file VTRs if they have a groundfish permit.
VTRs were hastily completed on recreational maps. As a result, information around Block Island is inaccurate.	There are many "gentlemen's agreements" between fixed gear and mobile gear fishermen, which in turn set different lines on Loran.	Seasonal representations look good.	Use a five-year running average to capture changes in different fisheries.	While fish migrate south each year, 2012 was an anomaly. Fish were "pinned" to the beach for some reason.
	VMS could show unfished deeper waters. This may in turn reveal tracks from vessels originating in the Delmarva peninsula that seek fished/unfished lines in deep water canyons.	On the groundfish map, cod looks good. Grey sole and flatfish aren't represented and are actually in the areas shaded dark blue.	Metadata development is critical.	The big herring always move south first, with the smaller ones following.
	Areas of lesser catch are historically important to smaller vessels and harbors.	Representation of herring trips appears accurate.	VTR maps created by home port would show that the bulk of landings originate from six ports.	Herring annually migrate south along the coast, move offshore, and then loop back towards the northeast.
	Winter flounder is found at 20-30 fathoms, yellowtail at 30-50 fathoms, and grey sole at 50+ fathoms. If trip concentrations are shown along these lines, then the activity represented is fishing and not transit.	Herring catch is underestimated on VTRs.	Display the importance and diversity of lesser ports; use gear, vessel, and home port data to do so.	The big boats "code in" for mackerel; even if targeting mackerel, they will catch 2,000 pounds of herring.
	Check the effective date on regulations that stopped winter flounder fishing; if concentrations of red (high fishing activity) on the VMS maps go away, then it might be the result of regulation.	Yellowtail looks good. Maps should confirm when closed areas for yellowtail were initially opened.	Monthly/seasonal data is not as useful in the context of pre-emptive ocean planning uses like wind energy.	One participant wanted clarification on the permitting process. He stated that he only has a straight monkfish permit, but that others have a groundfish/monkfish permit. With the latter, people would be required to use their groundfish days, even though they may be targeting monkfish. This should be kept in mind as data is reviewed.
	Towing is not allowed in many lower use areas due to ocean floor features.	Yellowtail has greatly impacted inshore scalloping areas.	Map aggregate catch/efforts so that the importance of all fisheries is displayed compared to individual	Clarify that to in order to catch dogfish, you don't need to use a groundfish day.

All Regions				
"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
			species and/or fisheries.	
	All vessels with herring permits should be required to declare days spent in that fishery. Category C boats declare every day, just in case they catch herring.	One participant holding a general category scallop permit isn't required to submit VTRs; however, he records his own extensive VTRs.	Don't concentrate on seasonal data, but on aggregate annual use data by multiple fisheries. This will help plan future use accordingly.	There should be several options for herring permits: limited access (only herring) and catch exceeding 200+ pounds.
	Category C might also be whiting (and herring).	The 735 or 740 Loran lines is the boundary of the inshore scalloper's southern fishing range. The 850 to 750 Loran lines will be paved with scallop effort.	Examine which areas are important to particular fisheries (i.e., multispecies or herring).	There are fewer mackerel evident these days as compared to prior years.
	Mapping efforts should consider the differences between monkfish and groundfish declarations.	Scallop and SCOQ fisheries are more stable. The herring fishery has changed over time without having any spatial management changes placed on it.	Include large mesh and small mesh category layers.	One participant mentioned the huge squid fishery in the Sound. Many fisheries also transit there, and as a result, spring and summer fishing "is a mess." You can fish the Sound for squid if your boat is less than 65 feet long, and you have a MA Coastal Access Permit (easy to obtain).
	Examine the impact of low skate trip limits in 2010 on the monkfish fishery.	Scallops are found a little deeper offshore. Scallop fishing activity could be used to identify "hard bottom."	Fishing activity depends on the port location. For example, the majority of vessels that are Shinnecock home port make day trips. They can't fish at all with an east wind.	
	Monthly or quarterly maps would help reflects how fishermen follow monkfish, since it would allow better gillnet point estimates. Monkfish gillnets are hauled every 4-7days; this prevents fish from dying in the nets.	Overall, the VMS scallop maps look accurate and complete. One participant noted that if he were to send someone scalloping, this map would show them where the efforts are best concentrated.		
	Look at VMS hotspots (not transiting) from 2006-2012. These will provide an accurate portrait of inshore scalloping grounds.	Fluke are found in 50-100 fathoms of water, deep in the winter.		
	Maps of scallop abundance will aid limited access and general category scallopers in understanding areas that provide the best economic return. Scallops are largely	Seasonal multispecies maps look good. One participant noted that he often stopped winter fishing due to bad weather, even though surrounding areas were "hot."		

All Regions				
"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
	stationary.			
	Maps going back 2006 do not provide enough historic data to accurately represent scallop fishing patterns.	Monkfish multispecies - fixed gear maps look good.		
	Many fisherman (mostly day boats) land dogfish as bycatch; however, they do not keep well.	Groundfish and dogfish, mobile maps look good.		
	One participant noted that the Season 3 multispecies map shows "his guys steaming out to the Shelf for monkfish."	The royal red shrimp fishery doesn't use VMS; therefore, they are not represented on current maps.		
	It won't be easy to incorporate Maine Lobsterman Association (MLA) maps into the project.	Map individual species in the groundfish complex; choke species effects.		
	Herring maps don't capture historical patterns. One individual drew important areas on maps from the 1980's and 1990's.	Maps should describe what is included in "declared" fisheries with VMS (i.e., monkfish only doesn't include monkfish landed on a groundfish trip).		
		Vessels in the northern shrimp fishery have VMS on. The maps should query VMS by landings and map the results by month. Areas fished shift between early and late seasons.		
		Scallop grounds don't shift seasonally, but do shift annually.		
		Scallop and SCOQ fisheries are more stable than the herring fishery. Herring has changed over time without having any spatial management changes placed on it.		
		Consider mapping Mid-Atlantic stocks because RI has large landings from that area.		

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
The herring VMS map for May is inaccurate, since herring were not being caught off the beach in RI at this time of year. However, the cluster off the south on this map does look correct. The RI area concentrations here should be squid.	The majority of southern New England fishermen complete VTRs. However, it will be a challenge to get them to share their fishing locations.	On the VMS multispecies maps, the red transit line is correct until you get to the #6 buoy where fishing starts. No one drags in the Sound, so on this map it is likely hooking effort. Fishing in Closed Areas is also likely hooking effort. The distribution off Watch Hill, RI, and off Block Island, RI, looks correct. There isn't much fishing in the Lightship Closed Area and there are no yellowtail there. There is also little transit.	Transit lines for all VMS fisheries from New Bedford westward, or from New Bedford to the southeast (either below Nantucket or off Asia Rip) should be darker.	One participant shared his observation that mackerel are scarce nowadays. He believes that boats (possibly foreign ones) off Cape Cod are catching small mackerel, and thinks this "should be shut down."
The herring VMS map for September is inaccurate in that it seems to reflect December/January activity. Fish come down the coast in mid-December, and then hit off RI. They keep moving south, and by the end of February are out of range for most New England. (Vessels don't follow the schools, but tend to catch them as they pass through.) Offshore concentrations look correct.	Most CT fishing happens in the Block Island Sound (day boats) and Hudson Canyon (trip boats).	In regards to monkfish VMS fixed gear maps — the offshore patch south of Closed Area II is not well defined. It's isolated, yet doesn't have steaming activity next to it. It was recommended we talk to fishermen from the Chatham, MA, gillnet fleet to elicit more information. This activity may be multispecies boats catching monkfish. When compared to the mobile gear maps, those fishermen appear to be in the Closed Area north of this strange cluster. It was suggested gillnetters are forced south into this patch because they want to avoid gear conflicts.	The western edge of the Closed Area (Nantucket Lightship) is deep on the NROC 22B Map.	
The herring VMS map for September shows a curious cluster around Block Island, RI. Fish are preparing to spawn, so the aggregate offshore near Georges Bank looks good but the one near Block Island doesn't – the participant has never heard of spawning aggregation here. He suggests looking at NMFS bottom trawl data and inspecting VTRs. It could be that year that fish spawned and moved south early.	The red 10' square off Long Island is likely mixed fishery out of Montauk, NY.	Monkfish happen to be found on the edge of the Hudson River, at a depth of 50 fathoms or more.	Vessels fishing off Long Island, NY, don't tend to have VMS.	

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
The herring VMS map for September seems to reflect speed of vessels with VMS rather than a fishing aggregation around Block Island.	Fishing activity depends on port location (i.e., in Shinnecock they mostly do day trips, and with an east wind they can't fish at all).	Summer scallop fishing is heavy off inshore southern New England.	New boats will be coming this year from Montauk, NY. Therefore, 2012 data will look different than data from preceding years.	
The herring VMS map from October looks inaccurate. It's odd to have herring in large concentrations around Block Island this time of year. Perhaps this represents scup? That would make more sense.	One participant emphasized the importance of Hudson Canyon. Fishermen from RI and NY often fish there in the summer for scup, squid, and various pelagic species.	Fairway Buoy off Block Island, RI, is "pounded" by scallopers.	Most CT fishing happens in Block Island Sound (day boats) and Hudson Canyon (trip boats).	
Cod maps east of Nantucket do not look correct.	There is not much monkfishing on the edge of the Hudson River.	The blue blocks could represent mackerel fishing. There is a smaller number of mackerel available these days, and as a result, fewer fishermen target them.	One individual from the monkfish fishery noted that participants from south of New England don't venture north of Cape Cod, and that the monkfish maps generally capture where they go (even if the numbers are underrepresented).	
In regards to the multispecies season maps, one participant is unsure what the "bowtie" off Nauset on Cape Cod is supposed to represent – the 66 Buoy, deep water, haddock spot? There could have been a big pile of haddock that time of year. Otherwise, they look accurate.	In terms of all VMS fisheries maps, transit lines from New Bedford westward, or from New Bedford southeast (either below Nantucket or off Asia Rip) should be darker.	There is a big lobster effort around Block Island, RI; some vessels complete VTRs for this fishery.	Some vessels are taking monkfish in winter months at a depth of over 200 fathoms. Catch tends to be 550 pounds and clean, with no red crabs. (This participant also mentioned "New England King Crab" in depths of 400-600 fathoms; perhaps this is a potential market?)	
The scallop VMS maps have a light concentration (a "finger" way offshore) where people shouldn't be fishing. They do take monkfish there. However, the line around Long Island, NY, seems strange. Could this represent scallop permit fishermen dragging for fluke?	Overall, the monkfish VMS maps look reasonable. You can see the Westport, MA, fleet popping out, as well as the Chatham gillnet fleet (including Chatham boats going south, in transit and fishing).	On the scallop VMS maps, the transit line from New Bedford out makes sense. There used to be a historic scallop effort on Cox's, but that has ended.	One participant has 25-30 fishermen in his sector who all fish in a concentrated area when targeting yellowtail – southeast of Block Island, RI, like the map indicates.	
	The western edge of the Closed Area (Nantucket Lightship) is deep on the NROC 22B Map.	North of Cape Cod are traditional cod breeding grounds. However, there were no more cod this year. Last year, fishermen were catching cod offshore, north of Cape Cod.	Ten years ago there were big yellowtail trips between Corner Buoy and Nantucket Lightship.	
	Boats fishing off Long Island do not tend to have VMS.	On the cod maps, the top of Area 1 and off Block Island, RI, looks good.	Scup, fluke, squid, and butterfish are considered to be "issue fish" in CT.	

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
	New boats will be coming this year from Montauk, NY. Therefore, 2012 data will look different than data from preceding years.	Cox's Ledge historically had cod stocks and is rebuilding now for fixed gear effort, lobster, and gillnetters. Historically, monkfish are the only healthy fishery there.		
	One participant pointed out that many places which appear green ("low effort") are that way because the bottom is mud, rocky, or shallow. Scallops do not live in these habitats, which are collectively referred to "mud hole off Hudson."	The herring VMS maps for January, April, May and October look okay. The herring VMS map for May has some issues. There is an offshore hotspot that might be a couple big boats from ME or Gloucester, MA; people don't generally fish for herring out of Stonington, CT.		
		The herring average catch takes quite a beating off inshore CT. Stocks still manage to rebound.		
		Mackerel must be what shows on the VMS maps inshore in Narragansett Bay. Off Montauk, it's tuna. There is nothing represented off Norman's Land (off Cape Cod); however, there should be. This participant took a summer tuna fishing trip there with good results.		
		Herring VTR Trips: Overall looks OK. Maybe south of Long Island, more 5-25 trips, could be mackerel.		
		One participant noted that he expected to see more dogfish density off Block Island, RI, and Long Island, NY, on the dogfish VMS map (01-09). He suggested we double check data with others who fish the area.		
		There is a need to map tuna areas south of Cape Cod.		
		Mid-Atlantic stocks should be considered because RI has large landings from that area.		
		Scup, fluke, squid, and butterfish are considered to be "issue fish" in CT.		

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
		There is a general loss of lobster, northern shrimp and Atlantic salmon fishery in the Mid-Atlantic and southern New England. Cod are shifting to colder waters. Black sea bass, croaker and fluke are shifting north.		
		Yellowtail stay in waters deeper than 20 fathoms, except off Nauset on Cape Cod.		
		Highly migratory species are found south of Long Island, NY, and in the Hudson River in during summer months. They are also found off George's Bank. Boats from Barnegat Light, NJ, go there to fish.		
		Ten years ago there were big yellowtail trips between Corner Buoy and Nantucket Lightship.		
		The concentration on the Season 3 VMS map out on the southeastern part of George's Bank could represent whiting.		
		<p>There are no monkfish in Closed Area II.</p> <p>Fishermen don't go out just for monkfish. It's shallow water off Gloucester, MA, with no monkfish to be found there; you need to use 12" gear or less on the hard bottom. The Closed Area effort looks good. Monkfish are caught as scallop bycatch off Block Island, RI.</p>		

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
		The dump site off Norman's Land, MA, has monkfish. Monkfish may be caught using multispecies mobile gear off Martha's Vineyard. It's not really a fishing area due to a lot of transit. Mobile gear fishermen don't want to fish that area simply because there is a great deal of fixed gear effort.		
		One individual from the monkfish fishery noted that participants from south of New England don't venture north of Cape Cod, and that the monkfish maps generally capture where they go (even if the numbers are underrepresented).		
		One participant with a general category license pulls scallop bycatch with his fluke take, even though he doesn't target them. There is a hot spots for scallops (and codfish) off Block Island that should be represented on the VMS scallop map.		
		There is a large number of fluke to be found off Fisher's Island, CT. Lots of fishing effort is expended there.		
		There are monkfish available off Montauk, NY, and off NJ. However, the numbers are not as great as those off Stonington, CT, where you can go out deeper than the Hudson Canyon. On one track, monkfish were found at a depth of 50+ fathom lines.		
		Maps for dogfish average trips look good. The area off Block Island, RI, is loaded with them in the summer, and that catch helps pay for fuel.		

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
		Over the last five years, haddock have been seen near the Hudson River at depths of 50-60 fathoms. However, not this year.		
		The cod average catch maps look good, but should show more density off Martha's Vineyard, MA.		
		Things are changing; seeing more southern species in conch pots like black sea bass; seeing scallops like never before in Niantic Bay.		
		Historically, more groundfish were caught off Martha's Vineyard than is shown on the VMS groundfish average catch maps. In 1992 it was an important area for groundfish, with healthy stocks of flounder and cod. Maps should show more fishing activity off Nantucket Island, MA.		
		There are more yellowtail than any other species. One participant stated that his big contention is not being able to catch them due to cutbacks. The 2008 yellowtail maps need to show that there's a breeding ground off Gloucester, MA (smaller fish). There should be more density shown in the southwestern part of George's Bank in the winter months – yellowtail moved off north and east due to the warmer water.		
		Maps should somehow show the smaller YT that were off Block Island, RI, in 1997-2009. They should also show lots more yellowtail and flounder off Block Island, RI, from six years ago to the present day.		
		One participant noted that since we're at 10' square level, maps are not pinpointing his fleet's specific location off Block Island.		

Southern New England Region

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
		One participant has 25-30 fishermen in his sector who all fish in a concentrated area when targeting yellowtail – southeast of Block Island, RI, like the map indicates.		
		The February – April VMS seasons map should show fleets heading south for monkfish, and for yellowtail off "Winkie's area."		
		The herring VMS map for January shows dark concentrations at the "mud hole" on the southern end of the map.		

Gulf of Maine Area

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
There is a herring presence in western Gulf of Maine Closed Area. Fishermen should see herring there in the fall; however, this migration is not represented on the current maps.	There is casual talk that the big Gulf of Maine closures have been due to dolphin interaction. While these closures and changes don't necessarily affect this participant, he says he keeps abreast of these because changes in mobile gear activity affects his fishing and placement of nets.	On Jeffries Ledge, herring spawning historically takes place in October and November.	When a sole fisherman fishes an area, it won't show up in these regional maps.	
One participant was skeptical of the "blank" area off Pemaquid. According to MLA data, there should be fishing activity there.	A comment from one Mount Desert Island fisherman was that he is the only one who fishes out of there. As such, his effort won't show up on these regional maps.	Talk to Gulf of Maine scallop fishermen to see if their efforts are accurately represented in the scallop abundance maps.		

George's Bank Area

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
One participant was surprised by the multispecies seasons map for November - January. He felt he should "see more" out on the southeastern part of George's Bank. Weather could have affected this observation and should be taken into account in future mapping efforts.	There is an unfished area on central northern George's Bank which has gravel beds between sand ridges. Herring eggs and winter flounder are found there, while mixed groundfish are in deeper waters.	Haddock maps look good, and are showing some haddock SAP program. In spring, there are also lots of white hake to be found in deep water off the Closed Area II near George's Bank.	The 30' rim at NW edge of little George's Bank (near the eastern edge of Closed Area I) is not fished for scallops because it is harder bottom than the surrounding area.	One participant mentioned how fish always seem to return to same spot (i.e., heavy tow effort for yellowtail on George's Bank). They are still there, year after year, trip after trip. Fishermen call this reliable catch "going around George's" when making the trip.
The monkfish fixed gear map needs to show that there are no monkfish in "Winkie's Canyon" off George's Bank (the isolated spot by the Exclusive Economic Zone).	Big boats fish offshore on the Northern Edge.	Multispecies seasons maps for scallops (May - June) need to concentrate on the channel. The area on George's Bank looks good from August onwards. February to April looks good. Fishermen set out on the top of Closed Area I, so transit there from shore.		
	You can see on the map how people "fish the line" along the northern edge of George's Bank. One participant wishes they could get into Closed Area I to fish. He mentioned that people are likely cross the line briefly, stating that they had "downed satellite"	The scallop maps look good; the greatest effort is on the northern edge of George's Bank.		
	30' at Northwest edge of little Georges Bank, eastern edge of Closed Area I is not scalloped because it's harder bottom than surrounding area			

Other Areas

"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
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Other Areas				
"Doesn't Look Quite Right" Comments	Fishing Location Comments	Species Comments	Data-Specific Comments	Knowledge Comments
One participant mentioned that they can't go haddock fishing in Area I anymore, so the maps are "off." He hasn't seen haddock there recently because the water isn't cold enough.	All VMS fisheries - Transit lanes are still a problem in terms of all the VMS fisheries maps; however, they are important in their own right. With the addition of lobster, the whole area seems covered.	There is a clean monkfish fishery from April to July. An 8 x 12 mile ledge with hard bottom is a prime complex habitat.		
On the herring VMS map for October, there is no catch this time of year in the southern coastal cluster.	VMS could show unfished deeper waters. This may in turn reveal tracks from vessels originating in the Delmarva peninsula that seek fished/unfished lines in deep water canyons.	One participant noted that the Season 3 multispecies map shows "his guys steaming out to the Shelf for monkfish."		

Management Comments	Future Use: Subsequent Iterations, Resource Advice	Aesthetics: Legend, Layout
Obtain historical monthly data (including VMS) spanning a five-year period.	Get U.S. Coast Guard aerial survey information on vessels.	Break down VTR trips as follows: 1-40, 40-60, 60-100, 100+ trips.
Add a Closed Area layer on the Data Portal that includes: gillnet and scallop rolling closures. Plot proposed habitat closures and scallop VMS data together. Include other management areas. Seek feedback about how blocks are split, which will in turn influence how people view effort in the area. Ask how management areas have impacted where fishermen fish.	It's important to map fish habitats the way NROC is doing it.	10' blocks are big, and this washes out the information. NROC needs to show finer scale for annual catches, per year.
Add user observer data and ocean current data. Combine bottom temperature data. Add turtle tracking data. One participant suggested obtaining MA state survey tows and overlaying them with fishing effort/catch.	Use the Automated Merchant Vessel Emergency Response System to map vessel routes.	Use both old and new NOAA charts as resources.
Add weir and pound net locations. Menhaden species data would also be an interesting addition.	Look at maps done by Charlie Wahle from the NOAA MPS Center, regarding oil spill work in NH.	Need to have Loran lines visible.
Overall transit should be distinguished from other transit details (navigational mapping and transit lane). A VMS time stamp would be important to separate out transit from fishing effort.	Investigate misreporting of trips east of the Hague line.	Bring a laser pointer to meetings with fishermen, to make it easier to refer to maps in a group.
Work to define target and non-target species that conflict with the data.	Add non-VTR fisheries like red crabs and offshore lobster.	Different fishermen will have different ideas on weight categories.
Emphasize the importance of sorting data by years and seasons. It's good to show fisheries by seasons because every few trips are different.	Table size charts are better in meetings with fishermen; bring a projector to show them on a large screen.	Fishermen aren't impressed with a "dog and pony show." They have previously seen improvements in how NROC displays information, but not in the maps
One participant suggested that proposed wind turbine locations be overlaid on fishing catch or effort by each species.	Tell people ahead of time which maps they will be shown.	Get rid of standard deviations in the map legend.
Overlay changing temperatures over decades, and be sure to note depth on each one. This participant felt that changing fishery patterns are all temperature related.	Go to Sector Board of Director meetings.	Future uses are difficult to predict. Connecticut is dealing with lease beds. How can specific areas be reserved for future use?
What do we do with species that are Declared Out of Fishery (such as squid and whiting)? Is this useful to show on the maps?	Look at the Habitat Omnibus to understand species level issues.	1' square resolution could be useful, but be careful not to create sharp edges where they don't exist.
Participants from Woods Hole suggested that the Pioneer Array (approximately 200 fathoms off Martha's Vineyard) be added to the maps.	Utilize Integrated Ecosystems Assessments.	VMS point density is good way to display different uses and types of activities.
Consider the reason why historic fishing areas have evolved; there are fewer fish.	Use models for cod and croaker based on climate models to help predict future fishing patterns.	VTR effort should be displayed like NROC VMS data. Be sure to show NEFCS ecosystem monitoring efforts.
VTR data, especially from Closed Areas, is unreliable. Numbers are misrepresented and the breakdown on legends (especially as it pertains to lobster trips) is poor.	Include fisheries information from the MA Ocean Resources Information System.	One participant felt that VMS showed red better than VTR.
On VTRs, break down the vessel size and show those less than 60 feet in length.	Add work by NEFSC that analyzed VTR and VMS data.	Legends should be revised so that numbers are all the same.
Finer scale charts are needed on the maps. Ten fathoms can make a difference in some species. These enhanced images would allow fishermen to identify and discuss local areas.	One participant suggested this mapping effort be done for NOAA boats. He is interested to see where they do similar research showing fishing effort.	There is a huge range for the "big" end – make more categories (not 1,000 – 32,000!)
A number of groundfish fishermen suggested that we look at groundfish VMS maps from 2006-2009 (pre-Amendment 16 implementation) and 2010+ (post-Amendment 16 implementation). Particular attention should be paid to	Coordinate with the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) project.	Groundfish average trips show too large a range on the high end; make a couple more categories.

Management Comments	Future Use: Subsequent Iterations, Resource Advice	Aesthetics: Legend, Layout
differences in fishing activity patterns, which would be important on the western side of the closure area.		
The number of trips was influenced by DAS reductions; influences use patterns on VTR maps.	Combine fishing effort data with socioeconomic data, such as the value of fish caught, distribution patterns, etc. It would help to have revenue and product maps.	
Fishermen will question the data in terms of management impacts. Management measures influence whether an area is used by choice or because management excluded the use in that area. It was suggested that management areas be overlaid with fishing effort.	Show landings based on forage fish and on landings of food fish.	
Consider sector effects; one participant noted that he only has five days of groundfishing.	To complement the VTR data, Susan Wigley did a regression of VTR data. This correlated nicely with observer estimates.	
With management cuts in groundfish, several participants worry that more people will get into the whiting fishery and put pressure on this resource.	Discuss the cod tagging program at the School for Marine Science and Technology (SMAST); some of these fishermen have participated in it.	
Be able to justify VTR/VMS use or figure ways to integrate other data.	NROC should examine the Massachusetts Fishermen's Partnership mapping effort in conjunction with Stellwagen Bank NMS management planning process.	
One participant asked if permits could display data.	It was suggested NROC use Study Fleet data to get more specific locations – this would be self-reported, tow-by-tow data.	
Can be useful to use these maps for bycatch avoidance when they become a public resource.	One participant felt NROC use the more refined Study Fleet data. He participates in the SMAST river herring avoidance project.	
It was suggested that those who use the database be required to register first, so that traffic and future needs can be tracked.	It was felt that the project would benefit from extending maps south of Long Island to include Bedford, Freeport, Point Lookout, and Rockaway Inlet (NJ); and to add a link to Mid-Atlantic mapping data.	
Show days fished instead of the number of trips; many offshore trips have a lot of transit time but not a lot of fishing time.		
The new hotel in Boston on the pier blocks the VMS signal.		
Make a movie for each year for the groundfish maps.		
A map of the CPUE would be one way to merge days fished and catch maps.		
The Declared Out Of Fishery is huge for RI and means no VMS. This category includes Illex squid, loligo squid, scup, butterfish, and whiting – all key species with a huge economic impact for Point Judith. NROC should definitely include these maps in this project – many people in the area do 70-80% of their year doing DOF.		
Overall, these are cool maps. If NROC makes them public, include a disclaimer that says they can be misinterpreted. For example, the VMS maps are not necessarily fishing activity, etc.		

Management Comments	Future Use: Subsequent Iterations, Resource Advice	Aesthetics: Legend, Layout
Compare VMS maps to NMFS spring and all surveys to identify gaps where the surveys may show low abundance but VMS maps show high abundance.		
Add 2011/2012 VMS data; also look at post-Amendment 16 VMS data separately to see how fishing patterns have changed.		
Closed areas may be opened soon in next couple years; how will this affect fishing effort?		