



New England Fishery Management Council

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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

June 29, 2017

The Honorable Ryan Zinke
Secretary
Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

The Honorable Wilbur L. Ross Jr.
Secretary
Department of Commerce
1401 Constitution Avenue N.W.
Washington, DC 20230

Dear Secretary Zinke and Secretary Ross:

Please accept these comments from the New England Fishery Management Council (Council) regarding the U.S. Departments of the Interior and Commerce joint review of National Marine Monuments. Specifically, we are commenting on the Northeast Canyons and Seamounts National Marine Monument, which was designated during September 2016 and overlaps five canyons and four seamounts in the New England region. We plan to submit these comments via regulations.gov in response to DOI's May 11 request for comments; we ask that you consider them a response to NOAA's June 26 request for comments as well.

The Council has management jurisdiction over 28 marine fishery species in federal waters of the New England region, and a number of these are harvested on southeastern Georges Bank in the shallower depths of the canyon section of the monument. We have thoroughly evaluated the overlap between the monument and commercial bottom-tending gear fisheries through our ongoing Deep-Sea Coral Amendment (see excerpts in Attachment 1). This analysis used vessel trip reports (logbooks) and satellite-based vessel monitoring system data on vessel location, combined with information from at-sea observers, to estimate revenue generated, species landed, and hours fished within the monument and other management areas under consideration.

The primary gear types used in and around the monument include bottom trawls, lobster pots, and scallop/clam dredges, with smaller amounts of effort from separator trawls and Ruhle trawls. Top species include lobster, Jonah crab, red crab, scallops, silver hake, longfin squid, butterflyfish, flounders, Atlantic mackerel, and haddock. Total annual fisheries revenue associated with the monument was estimated to be \$1.8M for the period 2010-2015, based on logbook data. Based on information collected in a lobster permit holder survey conducted by the Atlantic States Marine Fisheries Commission, this total may underestimate revenue in the lobster pot fishery because of the way the data are collected. The results indicate that 12-14% of the offshore lobster fishery effort and 13-14% revenue (\$2.4-2.8M annually) for the lobster and Jonah crab fishery comes from the area of the National Monument. We also assessed dependence of individual owners on the monument. While many vessel owners have a low percentage of their revenue or

effort attributed to the monument, others appear to be more dependent on the area, particularly those using fixed gears.

Our coral amendment process has demonstrated that:

- Council stakeholders with diverse backgrounds support the conservation of canyon and seamount habitats and the species within those habitats, in particular deep-sea corals, which are ecologically important and vulnerable to disturbance.
- Fish distributions and fishing activities in the canyons are strongly governed by depth. The spatial extent of a management area, particularly how shallow the area is, has a large influence on how much fishing effort will be displaced.

The two points above are strongly linked. Except for the red crab fishery, which is exclusively prosecuted below 600 meters, fishing effort in the monument occurs in shallower depths. Thus, in the context of the Council's coral amendment, fishery closures in deeper parts of the canyons (600 meters and greater) generally received broad support from stakeholders, provided that the Council authorizes an exemption for the red crab pot fishery. We have seen broad support for fishery closures on the seamounts as well, and there are no indications that bottom tending gears are used at present on or near the seamounts. Because depth changes rapidly in the canyons and along the slope, a distance of just a few kilometers at the surface can represent a large difference in depth, and thus have a substantial effect on the amount of fishing activity displaced by a fishery closure. With respect to consideration (i) in the DOI notice, we note that deep-sea corals are not common except in the canyons and deeper, steeper, areas of the continental slope. Specifically, coral habitats along the continental margin tend to occur beyond the shelf break, which occurs between 200-300 meters. Roughly half of the part of the Monument that protects the canyons is shallower than 200 meters, the depth typically used to indicate the inshore canyon boundary. It is unlikely that many corals are in this area. To the extent that deep-sea coral habitats are considered "objects to be protected", the footprint of the canyon section of the monument may exceed "the smallest area compatible with proper care and management".

The Council recognizes that there are activities beyond the Council's authority which may be appropriate to regulate within marine national monuments. However, we agree with the position taken by the Council Coordination Committee (CCC) in May 2016 and May 2017 that the management of fisheries in marine monuments should remain under the jurisdiction of the Councils and NMFS, administered through the Magnuson Stevens Fishery Conservation and Management Act. As noted by the CCC in its May 2017 letter, designation of marine national monuments disrupts the Council's ability to manage species throughout their range as required by MSA. Specific to consideration (B) in the NOAA notice, we would argue that pre-designation consultation with Federal, State, and tribal entities affected fell short of the process fisheries stakeholders expected, based on their experience with the public process for fisheries regulation conducted under the Magnuson Stevens Act.

Compare the process used during development of our Deep-Sea Coral Amendment with that used to develop the Monument. The Council used a technical team that compiled and analyzed fishery and deep-sea coral information. This team consulted with industry and the Atlantic States Marine Fisheries Commission to supplement available data on the lobster fishery. The team reported to a Committee that identified alternative management areas in a series of public meetings that spanned nearly two years. The Committee worked to balance coral protection with limited impacts on fisheries using the data developed by the technical team. Two workshops were held to solicit additional input on proposed area boundaries and the expected impacts. Public hearings were held throughout New England to explain the alternatives and solicit input.

A suggestion offered at these meetings was added for consideration and will be analyzed fully before the final decision this fall.

In contrast, the initial Monument proposal was developed by a closed group of environmental organizations without any public input or notice that it was being developed. After a public affairs event, it was submitted for consideration to the federal government. While staff of the Council on Environmental Quality did meet several times with interested parties over a period of about seven months, they never provided a chart showing the boundaries that they were considering, and never circulated a proposal that detailed specific restrictions until the Monument was announced. The impacts of the action were never analyzed in any formal manner – or, if they were, the analyses were never published for public review.

It is our view that if the Northeast Canyons and Seamounts Marine National Monument is retained, the limitations on fishing activity implemented by its designation should be rescinded. A clear purpose and need for the Monument should be identified, and any fishing restrictions needed to meet that purpose and need should be developed through the Council process and implemented under the provisions of the Magnuson-Stevens Act. If necessary, the Secretary of Commerce should adopt measures for fisheries beyond the Council's jurisdiction.

We stand ready to work with the National Oceanic and Atmospheric Administration and the Department of the Interior as you complete your review of this national marine monument. If there is any additional information we can provide, please contact Executive Director Thomas Nies at 978-465-0492.

Sincerely,

A handwritten signature in black ink, appearing to read "John F. Quinn". The signature is fluid and cursive, with a long horizontal stroke at the end.

John Quinn
Council Chairman

Attachment – Excerpts from NEMFC Omnibus Deep-Sea Coral Amendment, June 2017

cc: Mr. Chris Oliver, NMFS Assistant Administrator for Fisheries
Mr. John Bullard, GARFO Regional Administrator
Regional Fisheries Management Councils

1 Introduction

The New England Fishery Management Council (Council) develops fishery management plan amendments in compliance with the Magnuson Stevens Fishery Conservation and Management Act (MSA), the National Environmental Policy Act (NEPA), and other applicable laws. Under NEPA, the Council evaluates a range of possible alternative approaches to addressing identified issues, and the analysis includes evaluation of the no action alternative, i.e. the ongoing management approach should no action be taken by the Council. In the case of the coral amendment, the No Action alternative (Section 4.1 of the amendment document) includes two closures with the same boundaries in both the Monkfish and Mackerel/Squid/Butterfish (MSB) Fishery Management Plans, three closures in the Tilefish Fishery Management Plan, and the Northeast Canyons and Seamounts Marine National Monument.

While none of these areas was designated under the discretionary coral protection authority in section 303(b) of the MSA, they all encompass coral habitats and provide some measure of protection for coral habitats through fishing gear restrictions. The monkfish and MSB closures in Oceanographer and Lydonia canyons are closed to vessels using days at sea in those fisheries. The tilefish gear restricted areas are in shallower parts of Oceanographer, Lydonia, and Veatch Canyons. These areas are closed to mobile bottom-tending gear. The Monument areas were closed to all commercial fishing on November 15, 2016, except red crab and lobster trap fisheries, closure of which will take effect seven years from the date of designation (i.e., 2023).

The following discussion, figures, and tables were adapted from the Omnibus Deep-Sea Coral Amendment. A recent draft of the amendment is available on the Council's webpage at <http://www.nefmc.org/library/omnibus-deep-sea-coral-amendment>. Because the fishery management closures in the monkfish, mackerel/squid/butterfish, and tilefish plans overlap with the marine national monument, the impacts described here are not additive.

2 Impacts on human communities

Under No Action, the fishing restrictions would remain in place associated with the two closures in the Monkfish and Mackerel/Squid/Butterfish (MSB) FMPs, three closures in the Tilefish FMP, and the Northeast Canyons and Seamounts National Monument. The Monument has been closed to all commercial fishing since November 2016, with the exception of the lobster and red crab fisheries, which have seven years to cease operations within the Monument.

With the Monument implementation, it is difficult to determine if fishermen would be precluded from fishing altogether or be able to shift effort to other areas. The lobster fishery is particularly territorial (Acheson 1987; 2006), such that efforts to shift effort to areas remaining open may be difficult for those displaced by the closures. The industry input from the NEFMC coral workshops was consistent with this (NEFMC, 2017). To the degree that these closures provide habitat for fishery species, there may be long-term benefits to fisheries and society, but these are difficult to project.

2.1 Fishery impacts

2.1.1 Prior impacts of the No Action Monkfish/MSB/Tilefish areas

Monkfish Areas: It is unlikely that the monkfish fishery was substantially impacted by closing Lydonia and Oceanographer canyons, and continuing this closure under No Action would likely have negligible impact. Since 2005, though Amendment 2 to the Monkfish FMP, fishing with any gear type while on a monkfish Day-at-Sea (DAS) in these Canyons (deeper than 200 m) has been prohibited. At the time, the impacts analysis indicated that this closure was designed to “prevent an expansion of the offshore monkfish into the deeper (>200 m) portions” of these canyons, and that the directed fishery was not operating within the closure. Thus, no negative economic impacts to the directed fishery were associated with the closure (In 2001, there were four non-directed trips with a combined monkfish revenue of \$68,000; NEFMC 2004, p. 41, 423).

Mackerel/Squid/Butterfish Areas: It is unlikely that the mackerel, squid, or butterfish fisheries were substantially impacted by closing Lydonia and Oceanographer canyons, and continuing this closure under No Action would likely have negligible to potentially positive impacts on the fishery in the long-term if protecting essential fish habitat improves the resource. In 2008, these canyons (same boundaries as the monkfish closure) became closed to bottom trawl fishing for mackerel, squid, or butterfish via Amendment 9 to that FMP – with the intent of reducing essential fish habitat impacts. At the time, the impacts analysis indicated that this closure would “have a minimal impact on revenues both for vessels and ports” (MAFMC, 2008; p, xi).

Tilefish Areas: It is unlikely that the tilefish fishery was substantially impacted by closing Lydonia, Oceanographer, Veatch and Norfolk canyons (Norfolk is outside the New England region), and continuing this closure under No Action would likely have negligible to potentially positive impacts on the fishery in the long-term if protecting essential fish habitat improves the resource. In 2008, these canyons were closed to all bottom-tending mobile gear via Amendment 1 to the Tilefish FMP – with the intent of reducing impacts known clay outcrop tilefish habitat. At the time, the impacts analysis (based on VTR data) indicated that, in 2005, \$207,096 in revenue from all fisheries in was derived from these canyons (just Oceanographer and Veatch), and just \$1,287 from tilefish. These totals were much smaller than what was derived from other canyons in the Mid-Atlantic that remained open through this action (\$6M).

2.1.2 Estimates of recent fishing activity within the No Action areas

Due to data limitations, it is impossible to know the true amount of fishing activity that has occurred within the No Action areas. Thus, multiple approaches are used to estimate fishing activity, and thus characterize the potential fishery impacts of No Action.

VTR analysis: Vessel Trip Report data were used to estimate recent (2010-2015) fishing activity within the No Action areas. Note that the No Action Monkfish/MSB/Tilefish areas were in effect during the period encompassed by this analysis, but the National Monument was implemented subsequently. Except for lobster trap gear, revenue results were unscaled. Because some lobster vessel operators are not required to submit VTRs (their vessels do not carry other federal permits), total lobster revenue was expanded (method explained in Section 7.1.3.2 of the coral

amendment). Maps of revenue by gear type and species are in Section 13 of the coral amendment.

Revenue: From 2010-2015, an annual average of \$0.4M of fishing revenue is attributed to the area of the Monkfish/MSB/Tilefish areas, with higher than average values in 2014 and 2015 (Figure 1). The recent revenue attributed to fishing with mobile bottom-tending gear from these areas is about 47% of the total, or \$207K annually. In terms of specific gears, revenue is primarily attributed to bottom trawls, lobster pots, other pots, and scallop/clam dredges; separator and Ruhle trawls and sink gillnet revenues are minor. Since bottom trawl was prohibited in these areas during 2010-2015, comparison with the more spatially refined VMS data below helps shed additional light on this finding.

The National Monument (Figure 2), which is larger, shallower and encompasses most of the Monkfish/MSB/Tilefish areas, has a more revenue attributed to it, averaging \$1.8M annually. During 2010-2015, there was a substantial scallop dredge fishery on the southeastern part of Georges Bank, close to, but not within, the Monument boundary – the spatial imprecision of VTR data may explain these high revenues inferred to the Monument. The recent revenue attributed to fishing with mobile bottom-tending gear from the Monument area is about 62% of the total, or \$1.1M annually. In terms of specific gears, revenue is primarily attributed to bottom trawl, lobster pot, and scallop/clam dredges, with smaller contributions from separator and Ruhle trawls.

Species: Lobster, Jonah and red crabs, and scallops are the highest value species of the top 10 species with landings attributed to the Monkfish/MSB/Tilefish areas (Figure 3), although an increase in revenue from butterfish is evident in 2012-2015. Longfin squid is consistently in the top ten, but more variable from year to year. Silver hake, another small mesh trawl species, is also a consistent contributor to revenues in these areas. Other trawl-caught resources include flounders, mackerel, and haddock. There have been recent increases in effort in the Jonah crab fishery, and a spike in red crab revenue generated from the area occurred in 2014. Revenues in the Jonah crab fishery are likely to remain above historic levels for the foreseeable future (Megan Ware, ASMFC, pers. comm., 2017). Revenue from sea scallops is particularly prominent in 2015.

The results for the National Monument (Figure 4) are similar in terms of the top 10 species by revenue, but emphasize sea scallop revenues relative to the Monkfish/MSB/Tilefish. This is likely the result of the Monument's larger size overall, and its extension into shallower areas of the continental shelf.

Focusing on monkfish, to determine how the 2005 closure of Oceanographer and Lydonia Canyons has impacted the fishery, the VTR analysis indicates that for the five discrete canyon zones that overlap the monument, monkfish was not within the top ten species landed by revenue (see section 7.4.3 of amendment document). Monkfish revenue was within the top ten species attributed to the 15 canyons that do not overlap the monument, each year during this recent time period, but just about \$100,000 or less annually (see section 7.4.3 of amendment document). Thus, there may be recent monkfish fishing in canyons other than Oceanographer and Lydonia,

though at least some of this revenue may be an artifact of the VTR analysis, with true fishing locations in shallower waters.

Focusing on mackerel, squid and butterfish, to determine how the 2008 closure of Oceanographer and Lydonia Canyons has impacted the fishery, the VTR analysis indicates that for the five discrete canyon zones that overlap the monument, mackerel, squid, and butterfish were within the top ten species landed by revenue (see section 7.4.3 of amendment document) each year during this recent time period, but it about \$120,000 or less annually. For the 15 canyons that do not overlap the monument, revenue for butterfish and squid were within the top ten species attributed each year during this recent time period, about \$250,000 or less annually (see section 7.4.3 of amendment document). Thus, there may be recent MSB fishing in canyons other than Oceanographer and Lydonia, though at least some of this revenue may be an artifact of the VTR analysis, with true fishing locations in shallower waters. Fishery stakeholders have emphasized recent increases in butterfish effort along the entire shelf break, owing to quota increases since 2013. Thus, butterfish revenues prior to 2014 underestimate future revenues from this species.

Owners: Between 2013 and 2015, the number of vessel owners with revenue attributed to the Monkfish/MSB/Tilefish areas and the National Monument respectively average 120 and 90 annually. For both, the percent revenue for owners fishing within these regions is typically in the low single digit percentages, but higher for some individuals, with some outlier owners generating as much as 5-10% of their revenue in these areas (Figure 9, Figure 11). This indicates that most of the potentially affected owners generate only a small fraction of their annual revenue from these areas, but a few owners derive a larger fraction of their annual revenue from the area. The most highly exposed owners fishing within the Monkfish/MSB/Tilefish areas tend to be pot fishermen, which is not surprising given the existing gear restrictions in these areas on mobile bottom-tending gears. This is in contrast with the National Monument, where a small number of owners employing mobile bottom-tending gears appear to be highly exposed.

VTR vs. VMS comparison: Between 2010 and 2015, an average of 317 bottom trawl trips and 266 lobster pot trips overlap the National Monument and 388 bottom trawl trips and 419 lobster pot trips overlap the Monkfish/MSB/Tilefish areas. Together, bottom trawl and lobster pot are the dominant gear types used on VTR-documented trips occurring in and around the No Action areas. The VMS data deemphasize scallop and clam dredge effort, with an average of 41 dredge trips overlapping the Monkfish/MSB/Tilefish and 51 trips overlapping the National Monument areas respectively.

For the permits (i.e., vessels) with 2010-2015 fishing attributed to either the Monkfish/MSB/Tilefish areas or the National Monument, bottom trawl gear is the most common gear type, though there is a decline through time, from ~120 to ~50 vessels fishing with bottom trawls in each area. Around 25 lobster vessels fished in the vicinity of these areas, again, with slightly more permits being fished around the Monkfish/MSB/Tilefish areas (including Veatch Canyon). Vessels with scallop and clam permits also report fishing in and around the areas. As noted above, larger numbers of permits report activity near the National Monument than in the Monkfish/MSB/Tilefish areas, likely because the Monument extends into shallower waters. There is a small number of permits that report using separator or Ruhle trawls in each of the

areas, and some permits reporting the use of gillnet gear in the Monkfish/MSB/Tilefish areas only. This reflects the concentration of gillnet effort in offshore RI and southeastern MA, but not further to the east where the Monument is located.

For both the Monkfish/MSB/Tilefish areas and the National Monument, the percent of VTR trips with Vessel Monitoring System (VMS) data in 2010-2012 is high for scallop dredge (93-100%), bottom trawl (84-94%), and Separator and Ruhle trawl trips (71-84%; Table 1). This indicates that these gears in these areas are well represented in the VMS data. For these gears, the VMS analysis represents fishing effort at a much more refined scale, and covers the vast majority of trips in the region. The same cannot be said for lobster pot and other gears, whose low level of VMS coverage (0-16%) would result in greater error when extrapolating the VMS results. It is unknown whether these same levels of overlap between VMS and VTR trips existed prior to 2010, given that VMS coverage has not been consistent across time. Bottom longline and gillnet VMS data have not yet been processed.

In general, the more spatially refined analysis using VMS data indicates that only 15-35% of permits attributed to fishing in the No Action management areas by the VTR analysis had VMS points falling within the regions of interest, for gears with good coverage (Table 2). Although the magnitude differs substantially, the interannual trends are generally consistent between the VTR and VMS analyses for trips and permits in the No Action areas. About 15% of VTR trips identified to be fishing within the Monkfish/MSB/Tilefish areas have VMS points falling within those regions, and the probability-weighted hours fished indicates a relatively small amount of effort is being expended in these regions by bottom trawl, squid trawl, and scallop dredges. This is intuitive, because these areas are currently closed to these gears. While more spatially precise than VTR data, VMS data nonetheless are a model of fishing distribution, and there are likely some errors in the attribution of specific VMS polling locations as fishing vs. non-fishing. The larger National Monument encompasses substantially more effort by bottom and squid trawls, although there is also substantial inter-annual fluctuation. About 25% of trips identified in the VTR analysis as having fished in the National Monument between 2010 and 2012 have corresponding VMS polls falling within the area.

The relative magnitude of effort estimated between the Monkfish/MSB/Tilefish areas and the National Monument are very similar between the VTR and VMS analyses. For 2010 to 2012, the ratio of revenue (VTR) and hours fished (VMS) in the Monkfish/MSB/Tilefish areas to the revenue/hours fished in the National Monument ranges from 14-20% in the VTR and 9-20% in the VMS, for trawls. This indicates both VMS and VTR paint a similar picture regarding the relative amount of fishing across the two regions. The scallop dredge ratios conform less across the two analyses, with the VMS analysis indicating no real concentration of fishing effort in either of these two areas using this gear. This is expected given the depths at which sea scallops generally occur in commercial abundance (i.e., below 110 m).

Figure 9, Figure 10, Figure 11, and Figure 12 provide the percentage of a permit's overall probability-weighted VMS effort within the Monkfish/MSB/Tilefish areas and the National Monument. Although this is expected to differ at least slightly from the percentage of owner revenue generated in each of these regions (Figure 5, Figure 6, Figure 7, Figure 8), due to the fact that multiple permits can belong to the same ownership group, there is substantial

concurrency between the two metrics. Both metrics indicate that the vast majority of individuals fishing within the Monkfish/MSB/Tilefish areas expend less than 1% of effort and generate less than 1% of total revenue in this region. For a similar majority, less than 5% of effort expended and total revenue generated is calculated to fall within waters of the National Monument.

It should be noted that most VMS transponders are programmed to send spatial coordinates once an hour. Given that bottom trawl vessels in the region tend to fish at a speed of 2-5 knots, while scallop dredges fish at 2-7 knots (Palmer and Wigley, 2007), there is potential for this VMS point analysis to underestimate the actual numbers of fishermen fishing within a relatively small region such as the Monkfish/MSB/Tilefish areas. Although less of an issue with the larger National Monument, the VMS data indicate a mismatch between the size of the management areas under consideration and the spatial precision of the data available to assess the impacts of the areas.

Figure 10 and Figure 12 present the percentage of a permit's overall VMS-derived effort generated from MBTG falling within the No Action alternatives. A comparison with Figure 9 and Figure 11 highlights that the most exposed permit holders in the Monkfish/MSB/Tilefish areas tend to be pot fishermen. As was the case with the VTR data, this is not a surprise given the gear restrictions already in place in that area. The distribution of permit-level exposure for bottom-tending and mobile bottom-tending gears in the National Monument is more consistent, indicating that some mobile bottom-tending gear fishermen are exerting a substantial portion of their effort within the bounds of the National Monument. These findings are consistent with the VTR-derived owner exposure.

ASMFC survey: The trap fishery for lobster and Jonah crab is not constrained by the Monkfish/MSB/Tilefish areas, but the National Monument will be closed to this gear type starting in 2023. The ASFMC survey of Area 3 lobster permit holders did not ask lobstermen to identify their fishing activity within the No Action Monkfish/MSB/Tilefish areas specifically, but there is likely to be less gear conflict with mobile gear in these areas relative to areas of similar depth open to mobile gear. Thus, the Monkfish/MSB/Tilefish may be more important to lobstermen relative to surrounding areas.

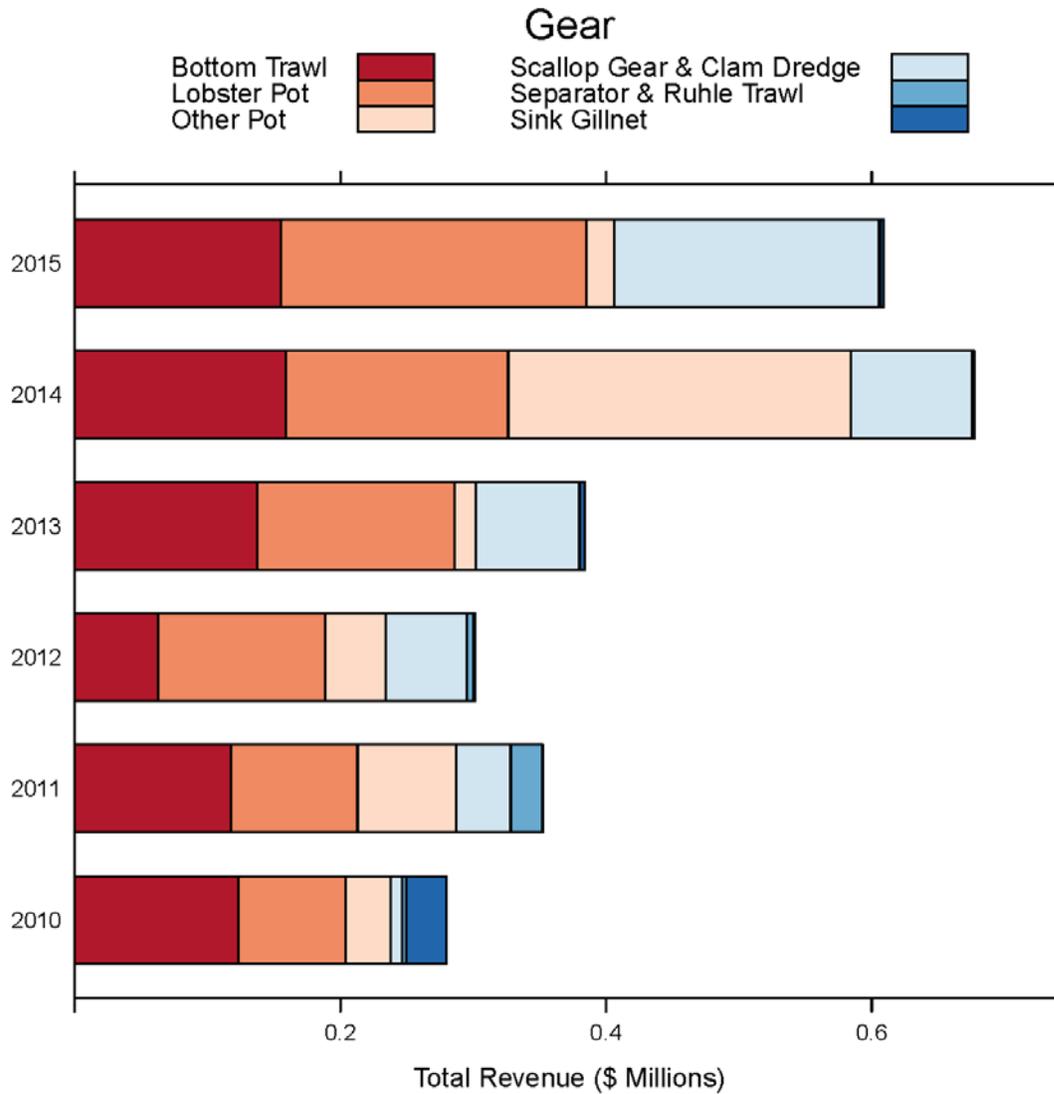
The survey did identify recent (2014-2015) fishing activity within the boundaries of the National Monument that will be closed to the fishery in the future. The results indicate that 12-14% of the offshore lobster fishery effort and 13-14% revenue (\$2.4-2.8M annually) for the lobster and Jonah crab fishery comes from the area of the National Monument. This revenue is higher than that derived from the VTR analysis (about \$0.7M annually, Figure 4).

2.1.3 Summary of fishery impacts

Given the high VMS coverage for bottom trawl, scallop dredge, and separator and Ruhle trawls in these areas, for these gears the estimates of fishing activity exposed are better assessed through VMS rather than VTR. Conversely, given the low coverage of lobster pot fishing in the region, the ASMFC survey provides an upper bound (~\$2.4-\$2.8M), while VTR provides a lower bound (\$0.7M), on the uncertainty in revenue generated from regarding the trips and permits historically fishing within the Monkfish/MSB/Tilefish areas and the National Monument. For sink gillnets and clam dredges, only the VTR analysis is currently available.

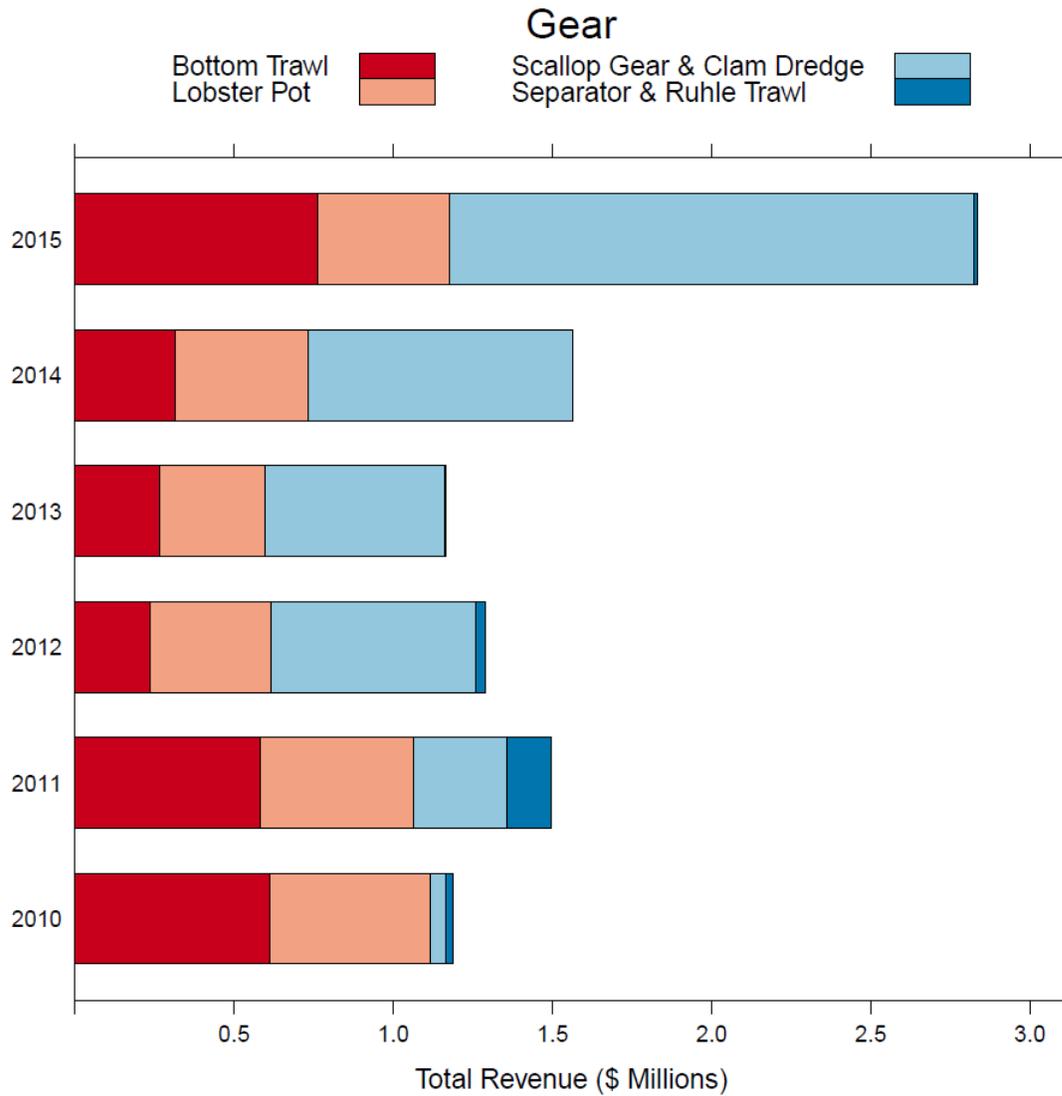
Although the high uncertainty regarding these estimates might upon first blush seem problematic, the percentage of revenue and effort, assessed at the owner and permit level respectively, consistently indicate a low level of fishing activity for the vast majority of individuals estimated to use these waters. However, a very small number of individuals seem to be using these areas more intensively.

Figure 1 – Revenue by gear type attributed to the No Action Monkfish/MSB/Tilefish areas within Veatch, Oceanographer, and Lydonia Canyons, 2010-2015.



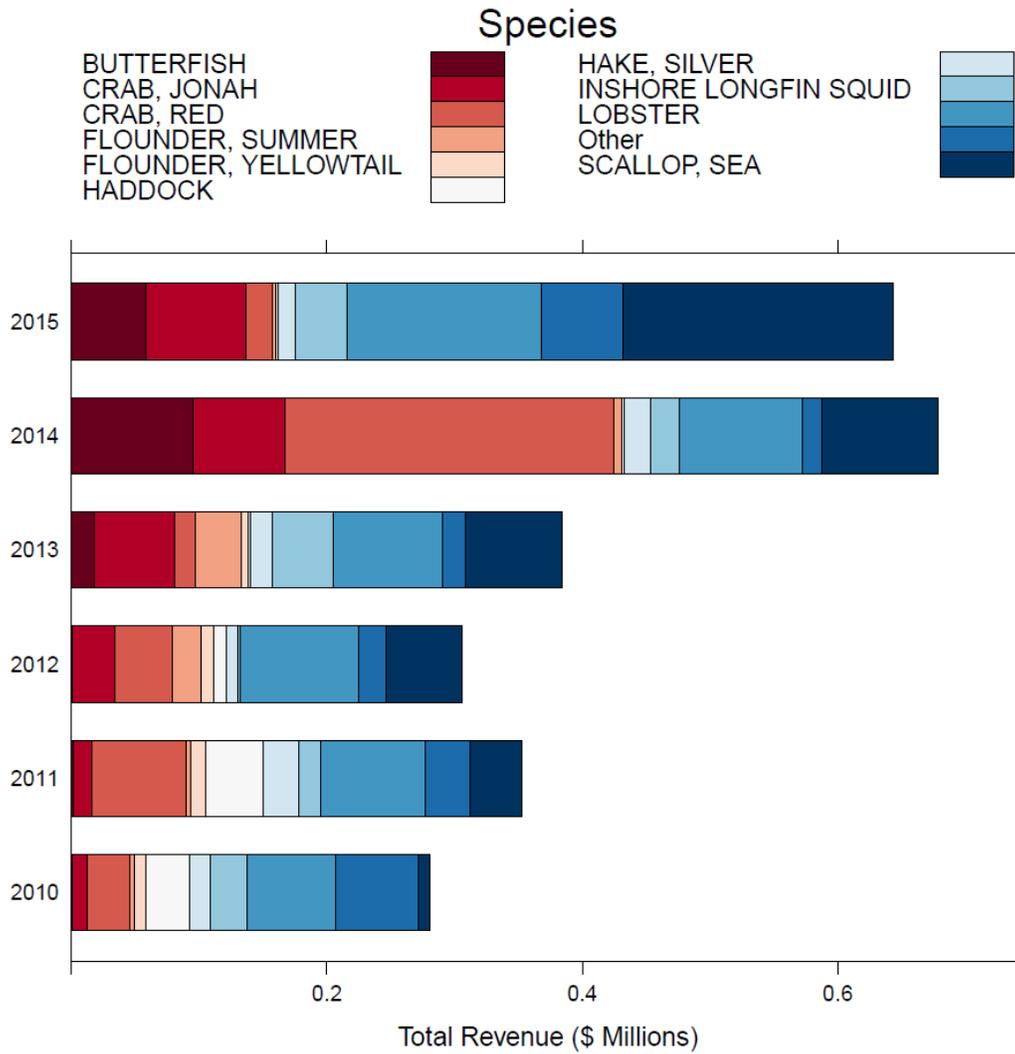
Source: VTR analysis.

Figure 2 – Revenue by gear type attributed to the Northeast Canyons and Seamounts Marine National Monument, 2010-2015.



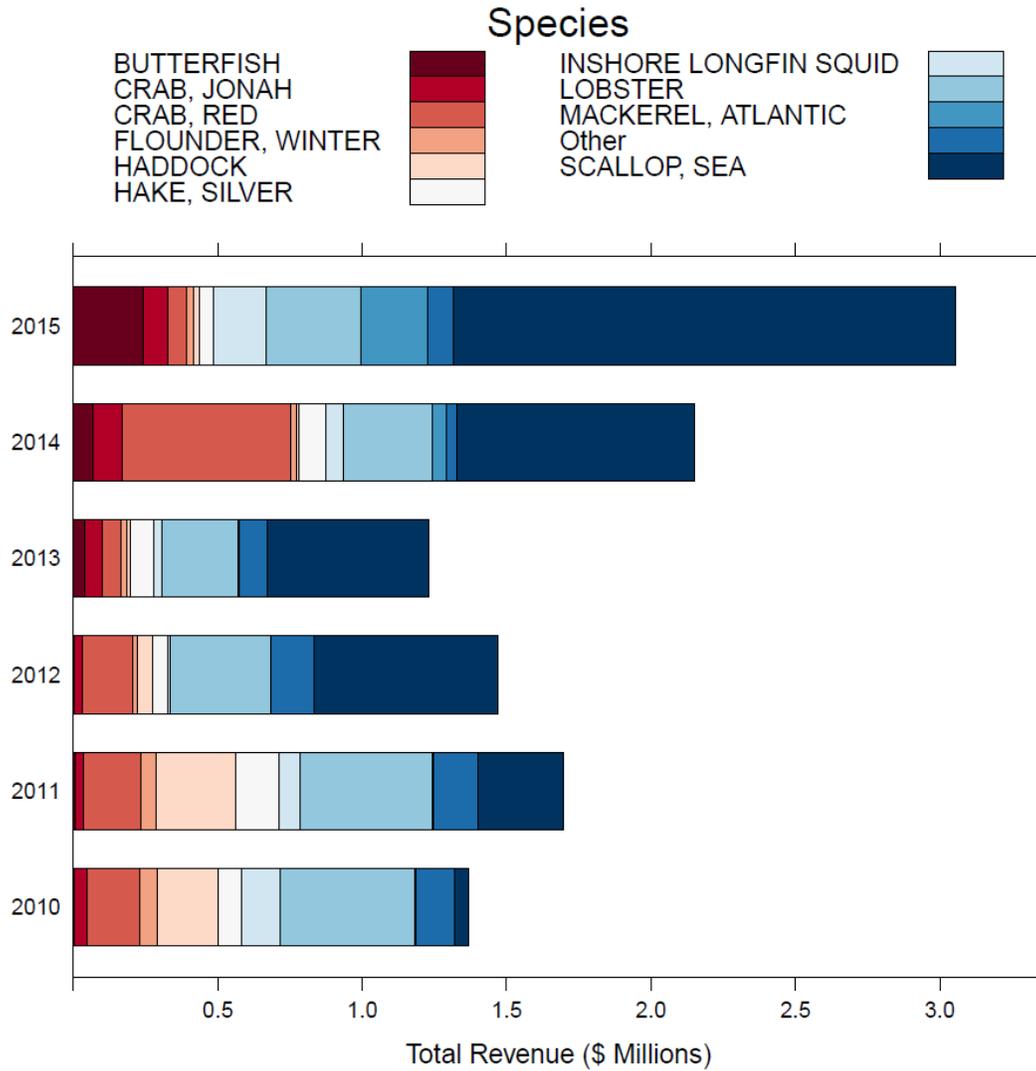
Source: VTR analysis.

Figure 3 – Revenue by species (top 10) attributed to the No Action Monkfish/MSB/Tilefish areas within Veatch, Oceanographer, and Lydonia Canyons, 2010-2015.



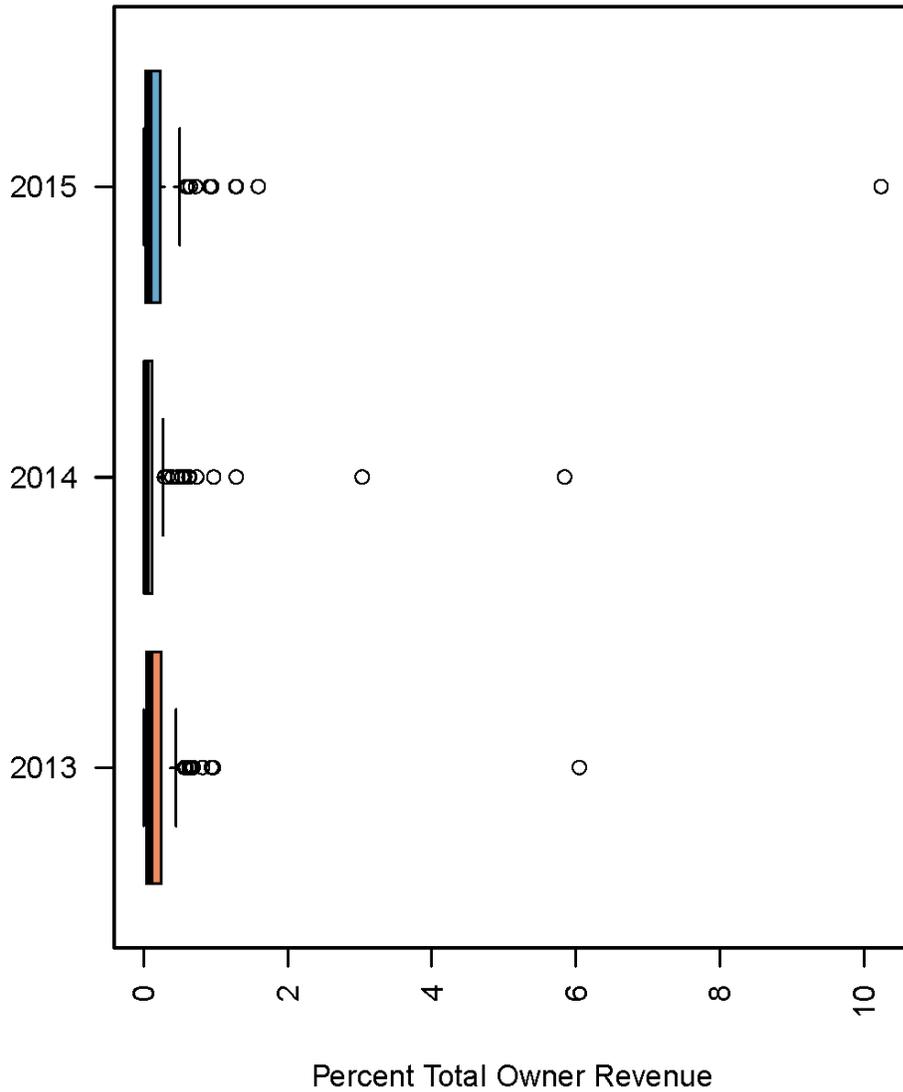
Source: VTR analysis.

Figure 4 – Revenue by species (top 10) attributed to the Northeast Canyons and Seamounts Marine National Monument, 2010-2015.



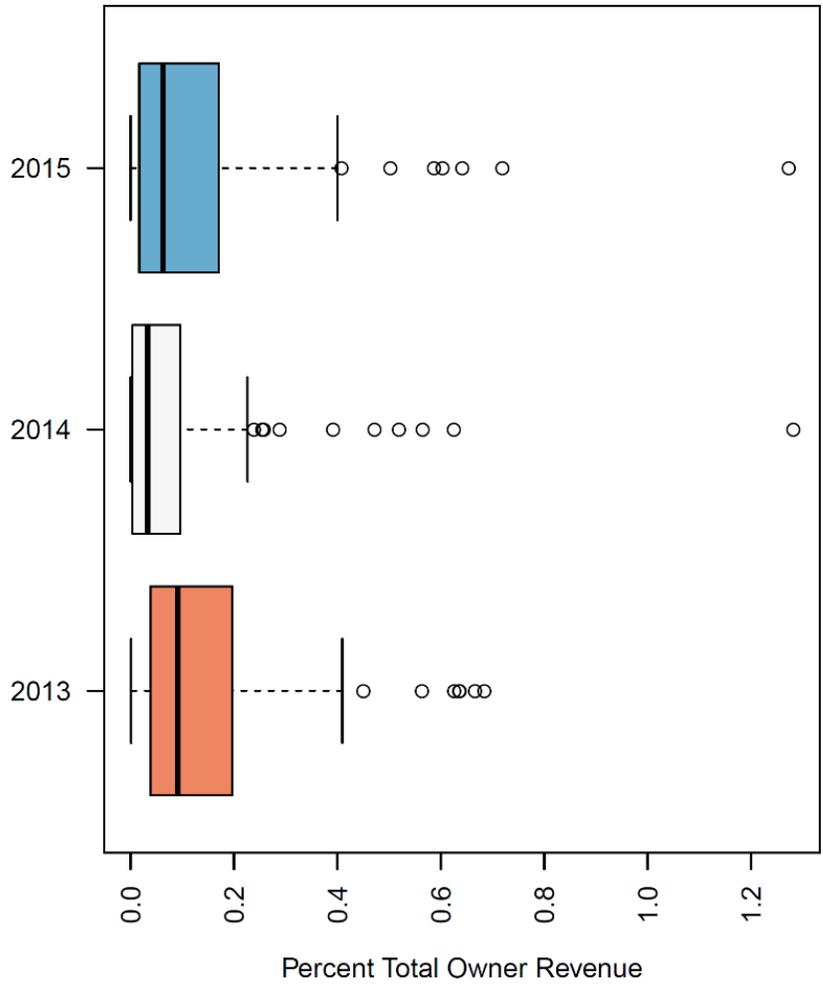
Source: VTR analysis.

Figure 5 – Percent of vessel owner revenue attributed to the No Action Monkfish/MSB/tilefish areas, 2013-2015.



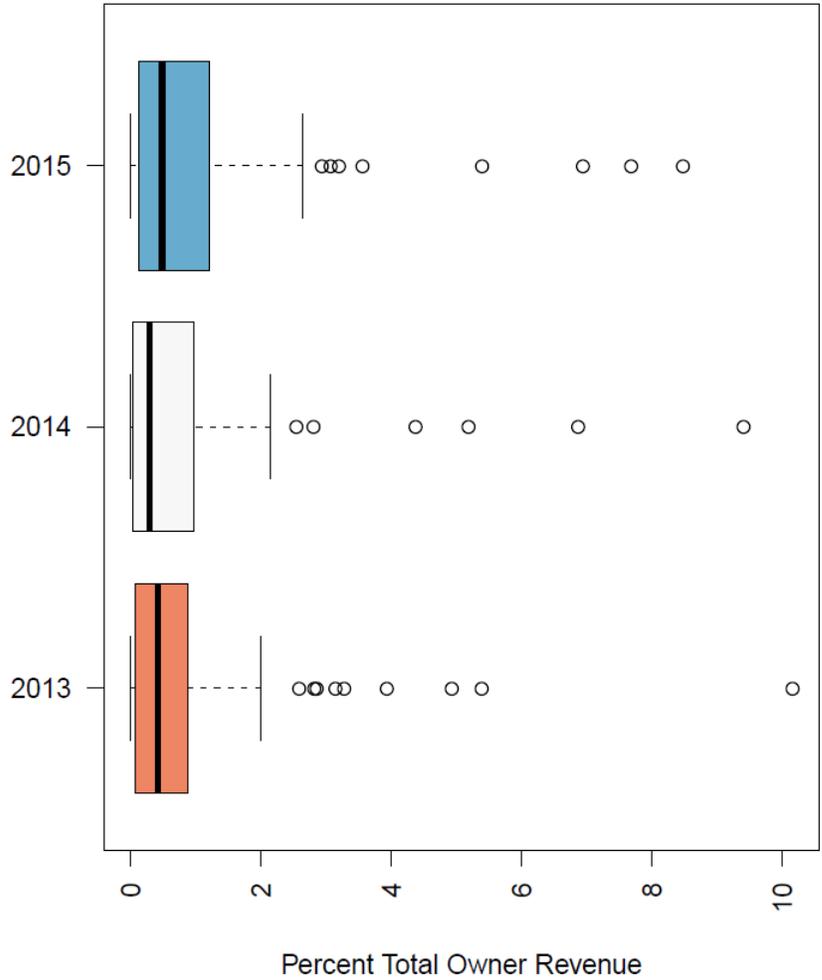
Source: VTR analysis. Open circles are individual owners with a % total revenue 1.5 time above the 75% percentile.

Figure 6 – Percent of vessel owner revenue attributed to MBTG within the No Action Monkfish/MSB/tilefish areas, 2013-2015.



Source: VTR analysis. Open circles are individual owners with a % total revenue 1.5 time above the 75% percentile.

Figure 7 – Percent of vessel owner revenue attributed to the Northeast Canyons and Seamounts Marine National Monument, 2013-2015.



Source: VTR analysis. Open circles are individual owners with a % total revenue 1.5 times above the 75% percentile.

Figure 8 – Percent of vessel owner revenue attributed to MBTG within the Northeast Canyons and Seamounts Marine National Monument, 2013-2015.

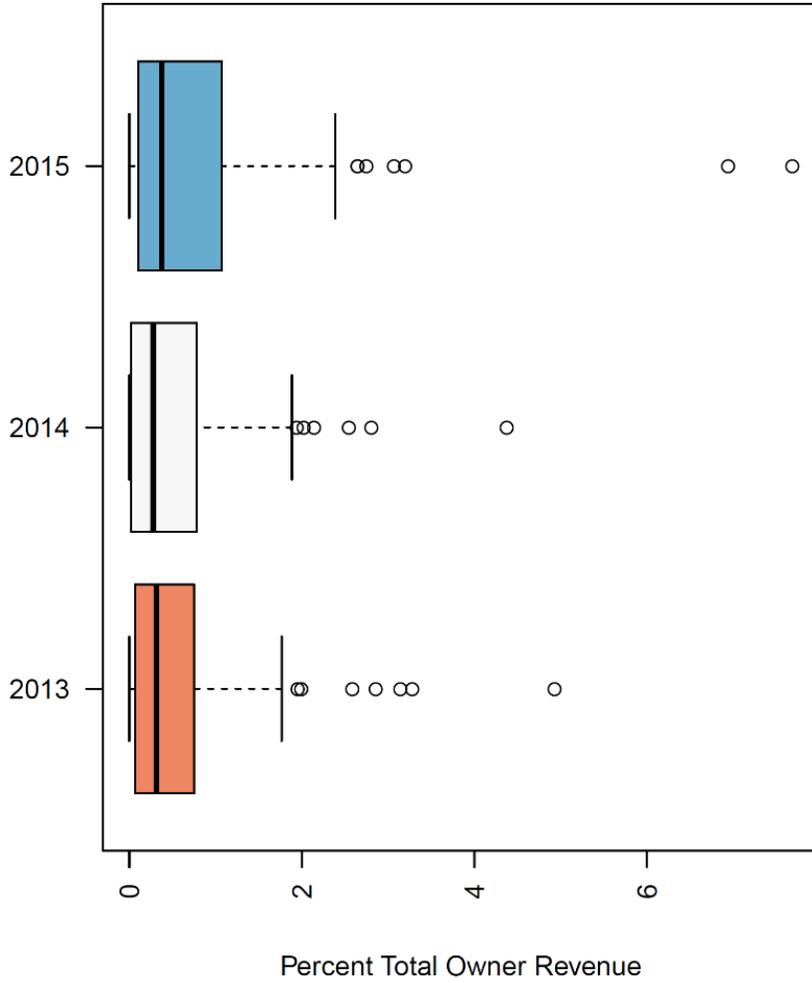


Table 1 – Percentage of VTR trips by gear type attributed to the No Action management areas that have VMS coverage, 2010-2012.

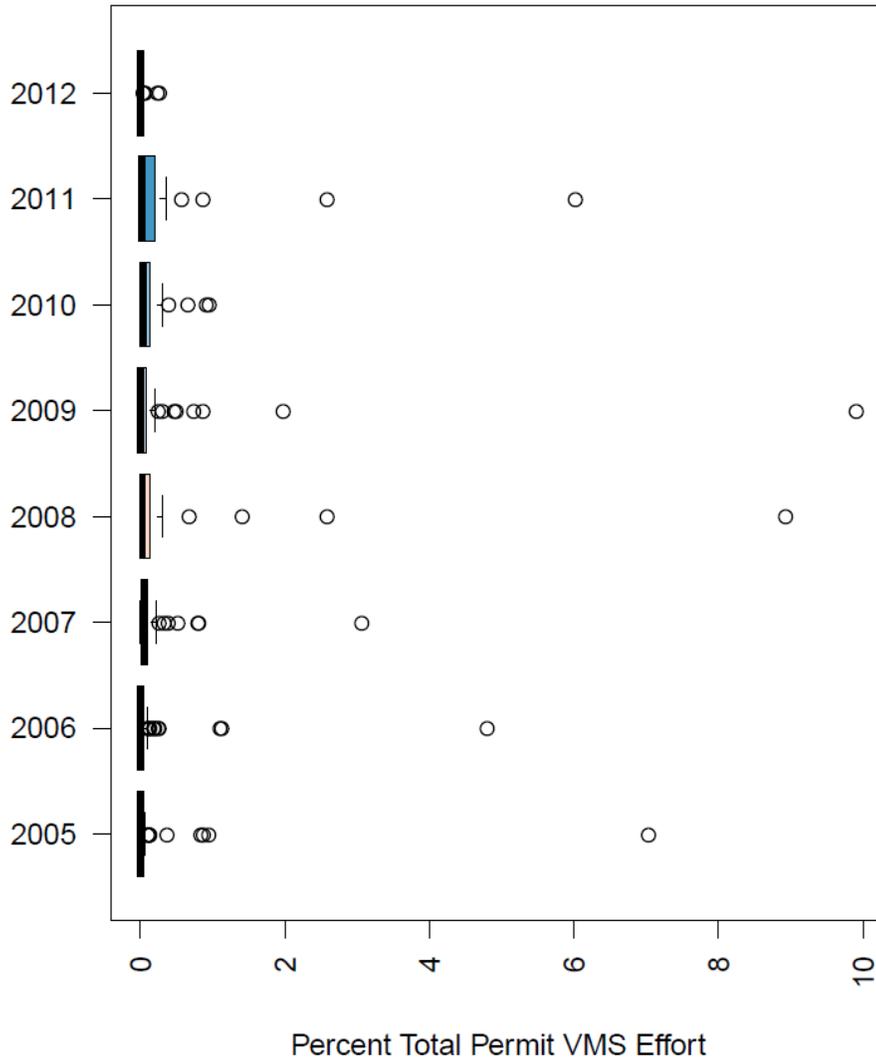
Gear	Year	No Action Monkfish Tilefish Areas				National Monument			
		Permits	VTR Trips	VMS Trips	Coverage	Permits	VTR Trips	VMS Trips	Coverage
Bottom Trawl	2010	117	575	539	94%	107	545	513	94%
Bottom Trawl	2011	99	481	430	89%	90	459	411	90%
Bottom Trawl	2012	100	351	296	84%	71	280	235	84%
Lobster Pot	2010	30	491	76	15%	21	309	49	16%
Lobster Pot	2011	30	420	28	7%	22	296	9	3%
Lobster Pot	2012	22	370	0	0%	18	257	1	0%
Scallop Gear & Clam Dredge	2010	8	8	8	100%	15	17	16	94%
Scallop Gear & Clam Dredge	2011	21	22	20	91%	27	30	28	93%
Scallop Gear & Clam Dredge	2012	29	35	35	100%	42	57	57	100%
Separator & Ruhle Trawl	2010	12	30	24	80%	14	40	30	75%
Separator & Ruhle Trawl	2011	30	110	92	84%	32	113	94	83%
Separator & Ruhle Trawl	2012	18	45	32	71%	19	46	33	72%
Other Pot	2010	4	27	0	0%	-	-	-	-
Other Pot	2011	3	20	0	0%	-	-	-	-
Other Pot	2012	5	31	0	0%	-	-	-	-
Sink Gillnet	2010	9	53	0	0%	-	-	-	-
Sink Gillnet	2011	7	29	0	0%	-	-	-	-
Sink Gillnet	2012	9	53	0	0%	-	-	-	-

Table 2 – VMS-derived estimates of effort (hours fished, permits, and trips) within the No Action management areas, by gear type

Gear	Year	No Action Monkfish Tilefish Areas			National Monument		
		Hours Fished	Permits	Trips	Hours Fished	Permits	Trips
Bottom Trawl	2005	19.32	20	39	614.52	50	149
Bottom Trawl	2006	48.51	25	44	373.21	49	101
Bottom Trawl	2007	57.70	46	71	756.01	55	127
Bottom Trawl	2008	23.41	23	61	433.21	31	103
Bottom Trawl	2009	22.14	19	70	256.56	36	137
Bottom Trawl	2010	40.54	33	85	243.10	37	132
Bottom Trawl	2011	51.33	18	53	305.25	22	91
Bottom Trawl	2012	7.99	11	41	105.40	17	73
Squid Trawl	2005	16.26	33	60	210.59	34	62
Squid Trawl	2006	27.19	32	70	32.41	23	41
Squid Trawl	2007	37.71	39	87	580.87	38	102
Squid Trawl	2008	8.02	8	13	3.84	5	5
Squid Trawl	2009	26.59	8	16	1.87	4	4
Squid Trawl	2010	9.46	10	21	187.75	10	17
Squid Trawl	2011	15.29	12	22	22.42	13	13
Squid Trawl	2012	1.71	6	7	2.71	3	3
Raised Footrope	2006	-	1	-	-	1	-
Trap	2005	1.83	3	5	13.76	3	5
Trap	2006	31.88	3	40	-	2	-
Trap	2007	22.53	3	28	-	2	-
Trap	2008	18.17	3	11	-	2	-
Trap	2009	10.11	3	17	-	1	-
Trap	2010	-	1	-	0.00	0	0
Trap	2011	-	2	-	-	2	-
GC Scallop	2006	-	1	-	-	1	-
GC Scallop	2009	0.00	0	0	-	1	-
GC Scallop	2011	0.00	0	0	-	1	-
GC Scallop	2012	-	1	-	-	1	-
LA Scallop	2005	0.16	25	28	0.20	9	10
LA Scallop	2006	0.18	28	35	1.34	28	40
LA Scallop	2007	0.00	0	0	1.05	3	3
LA Scallop	2008	0.00	0	0	-	1	-
LA Scallop	2009	0.22	12	12	0.56	13	13
LA Scallop	2011	0.73	8	9	0.73	7	7
LA Scallop	2012	0.09	9	9	0.14	9	9

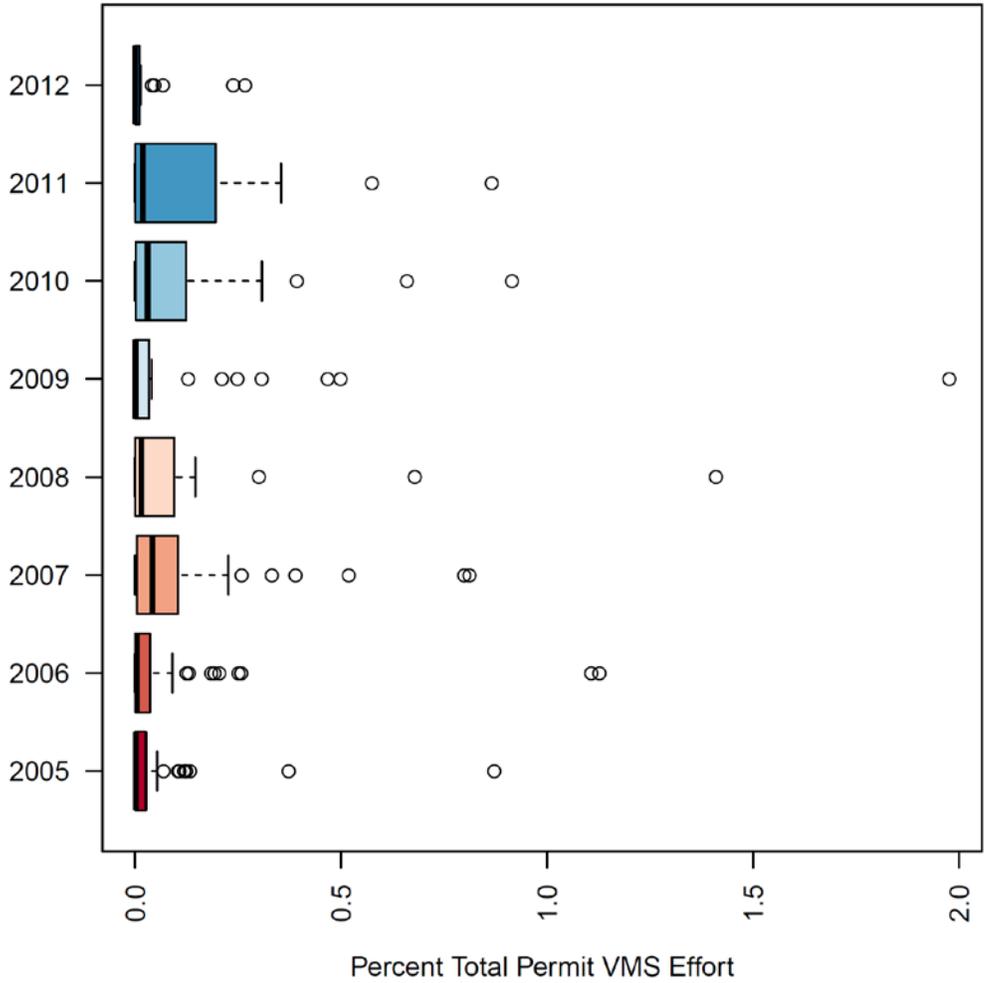
Note: LA and GC refer to limited access and limited access general category scallop gears, respectively.

Figure 9 - Percent of total annual permit fishing activity attributed to the No Action Monkfish/MSB/tilefish areas between 2005 and 2012, as derived from VMS



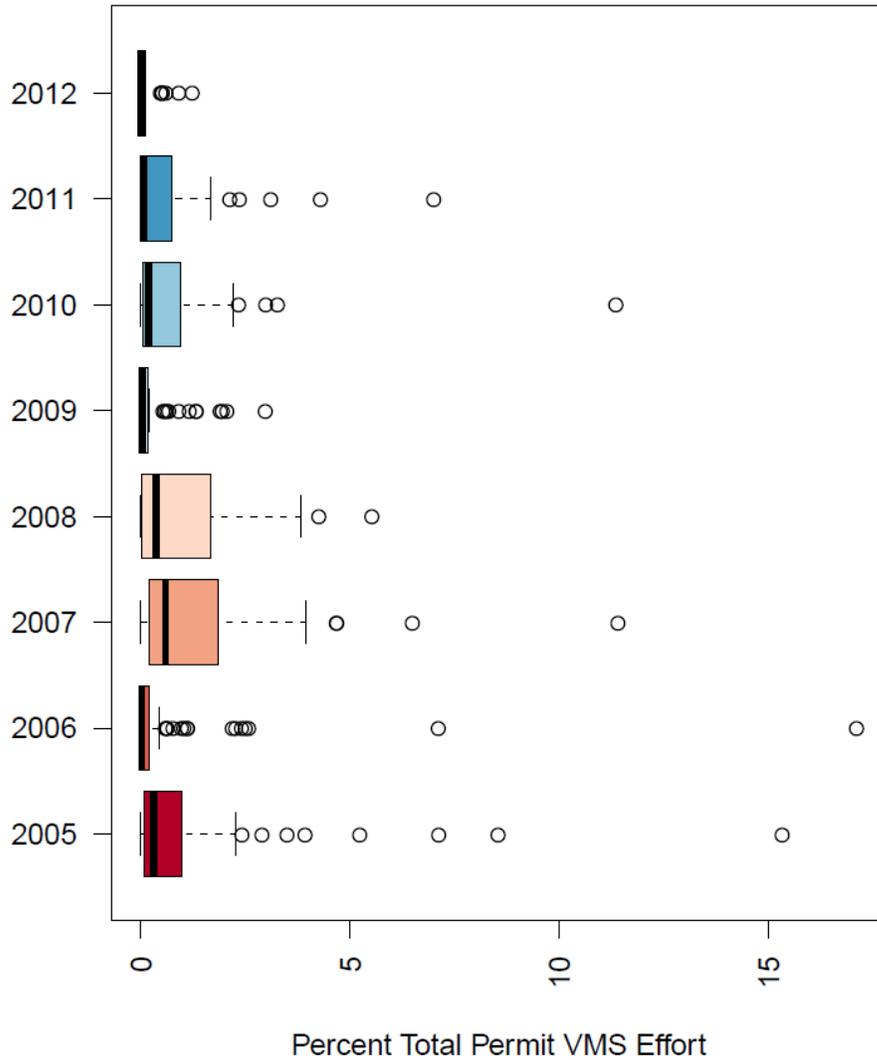
Source: VMS. Note: Open circles are individual owners with a % total revenue 1.5 times over the 75% percentile.

Figure 10 - Percent of total annual permit MBTG fishing activity attributed to the No Action Monkfish/MSB/tilefish areas between 2005 and 2012, as derived from VMS



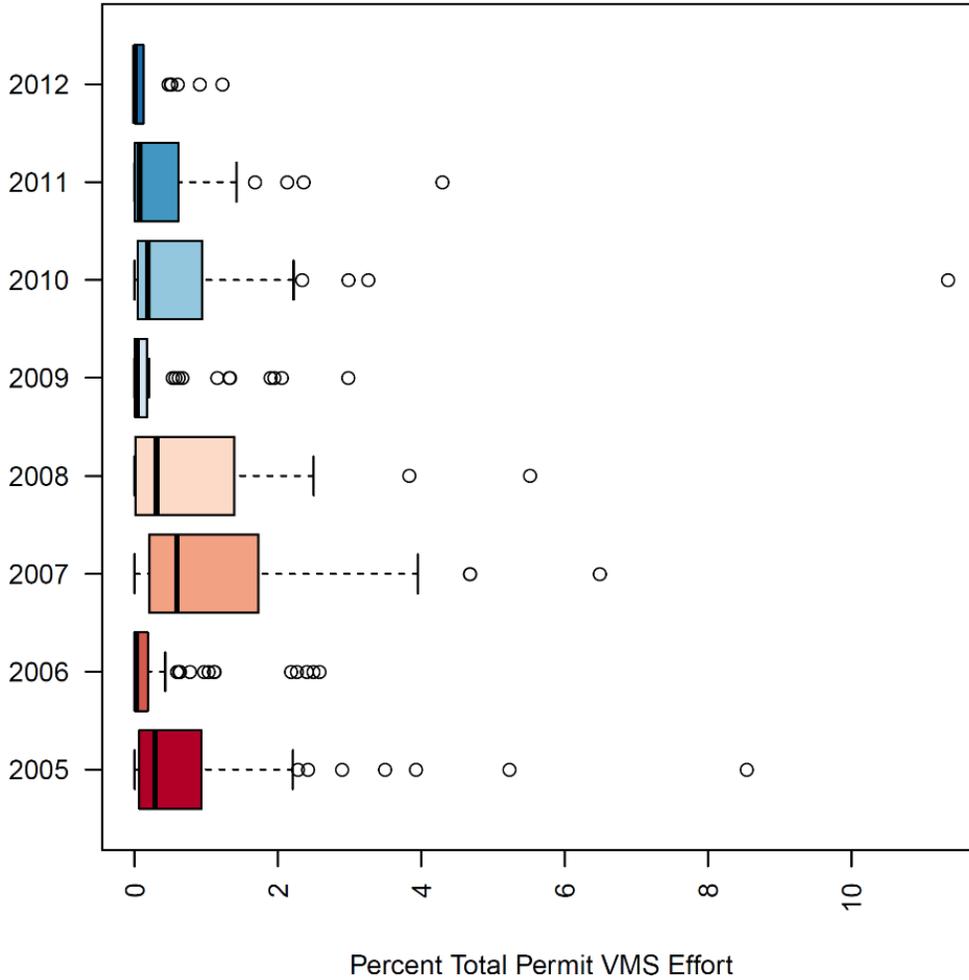
Source: VMS. Note: Open circles are individual owners with a % total revenue 1.5 times over the 75% percentile.

Figure 11 - Percent of total annual permit fishing activity attributed to the Northeast Canyons and Seamounts Marine National Monument between 2005 and 2012, as derived from VMS



Source: VMS. Open circles are individual owners with a % total revenue over 1.5 times over the 75% percentile.

Figure 12 – Percent of total annual permit MBTG fishing activity attributed to the Northeast Canyons and Seamounts Marine National Monument between 2005 and 2012, as derived from VMS



2.2 Fishing community impacts

General community impacts of the alternatives under consideration are described in Section 7.1.2 of the amendment document, which also describes the method, caveats, and data confidentiality standard used to develop Table 3 and Table 4, the revenue by state, region, and port attributed (using the VTR analysis) to recent fishing within the No Action coral zones.

No Action Monkfish/MSB/Tilefish Areas: Although the VTR analysis has some degree of error, it suggests that the fishing communities that may be active within the No Action Monkfish/MSB/Tilefish Areas are primarily located in Massachusetts, with lesser activity attributed to ports in Rhode Island, New York, Virginia, and other states (Table 3). The VTR analysis attributes recent (2010-2015) landings revenue to 45 ports and 411 permits, and 57% of this revenue to ports in Massachusetts. New Bedford (253 permits), Newport (9 permits), and Point Judith (61 permits) are among the top ten landing ports, and 28% of the revenue is attributed to other ports, indicating that the No Action areas may be particularly relevant for those three communities. According to the NMFS Community Vulnerability Indicators, New Bedford, Newport, and Narragansett (includes Point Judith) have a medium-high to high degree of engagement in commercial fishing. Of these three communities, Narragansett ranks highest in terms of reliance on commercial fishing, with a medium-high index, while Newport ranks lowest, with a low index.

The revenue attributed to Massachusetts and Rhode Island from the No Action Monkfish/MSB/Tilefish Areas is about 0.05% and 0.19% of all revenue, respectively, for these states during 2010-2015 (ACCSP data, 2017). Though these are minor fractions, certain individual permit holders could have as much as 10% of their revenue attributed to fishing from these areas (Figure 5, p. 11).

Table 3 – Landings revenue to states, regions, and top ports attributed to fishing within the No Action Monkfish/MSB/Tilefish Areas, 2010-2015 - ALL BOTTOM TENDING GEARS

State/Region/Port	Landings Revenue 2010-2015		Total Permits 2010-2015 ^a
	Total \$	Average \$	
Massachusetts	\$1,500K	\$250K	301
New Bedford	\$1,332K	\$222K	253
Sandwich	\$109K	\$18K	3
Gloucester	\$31K	\$5K	25
Other (n=13)	\$28K	\$5K	57
Rhode Island	\$879K	\$146K	70
Newport	\$399K	\$67K	9
Point Judith	\$183K	\$31K	61
Other (n=4)	\$297K	\$48K	12
Connecticut	\$14K	\$2K	10
New York	\$73K	\$12K	12
Montauk	\$72K	\$12K	10
New Jersey	\$27K	\$4K	14
Virginia	\$60K	\$10K	55
Newport News	\$26K	\$4K	29
Other (n=3)	\$34K	\$6K	33
North Carolina	\$4K	\$1K	27
Other state(s) ^b	\$87K	\$15K	15
Total	\$2,645K	\$441K	407

Notes: Ports listed are the top 10 ports by landing revenue that are non-confidential.
^a Totals may not equal the sum of the parts, because permits can land in multiple ports/states.
^b Includes confidential state(s).
Source: VTR analysis.

National Monument: Although the VTR analysis has some degree of error, it suggests that the fishing communities that may be active within the Northeast Canyons and Seamounts Marine National Monument are primarily located in Massachusetts, with lesser activity attributed to ports in Rhode Island, New Jersey, New York, and other states (Table 4). The VTR analysis attributes recent landings revenue to 35 ports and 359 permits, and 67% of this revenue to ports in Massachusetts. New Bedford, (253 permits) Newport, (6 permits) and Sandwich (38 permits) are among the top ten landing ports, and 27% of the revenue is attributed other ports, indicating that the areas near the Monument may be particularly relevant for those three communities.

The revenue attributed to Massachusetts and Rhode Island from the National Monument is about 0.22% and 0.54% of all revenue, respectively, for these states during 2010-2015 (ACCSP data, 2017). Though these are minor fractions, certain individual permit holders could have as much as 10% of their revenue attributed to fishing from these areas.

Table 4 – Landings revenue to states, regions, and top ports attributed to fishing within the National Monument, 2010-2015 – ALL BOTTOM TENDING GEARS

State/Region/Port	Landings Revenue 2010-2015		Total Permits, 2010-2015 ^a
	Total \$	Average \$	
Massachusetts	\$7,316K	\$1,219K	285
New Bedford	\$6,426K	\$1,071K	253
Sandwich	\$485K	\$81K	3
Gloucester	\$241K	\$40K	22
Other (n=11)	\$164K	\$27K	42
Rhode Island	\$2,579K	\$430K	44
Newport	\$1,132K	\$189K	6
Point Judith	\$578K	\$96K	38
Other (n=3)	\$869K	\$145K	5
Connecticut	\$92K	\$15K	6
New York	\$241K	\$46K	6
Montauk	\$240K	\$40K	5
New Jersey	\$278K	\$40K	8
Virginia	\$67K	\$11K	30
Other state(s) ^b	\$396K	\$66K	16
Total	\$10,969K	\$1,828K	353

Notes: Ports listed are the top 10 ports by landing revenue that are non-confidential.
^a Totals may not equal the sum of the parts, because permits can land in multiple ports/states.
^b Includes confidential state(s).
Source: VTR analysis.

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