UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

February 22, 2022

Mr. Robert Scarborough
Delaware Coastal Programs
Department of Natural Resources and Environmental Control
100 W. Water St, Suite 7B
Dover, DE 19901

RE: Federal consistency determination for American lobster permit ownership caps and mandatory harvester reporting.

Dear Mr. Scarborough:

We request your review of the subject regulatory action with regard to its applicability to the Delaware Coastal Zone Management Act (CZMA). This Federal action is being taken consistent with Amendment 3 of the Interstate Fishery Management Plan for American Lobster, under the Atlantic Coastal Fisheries Cooperative Management Act. We have preliminarily determined that the proposed rule is consistent with the enforceable policies of the Delaware Coastal Zone Management Plan and request your concurrence.

This action would implement changes to the American lobster fishery in Federal waters of the U.S. Exclusive Economic Zone. Measures include mandatory harvester reporting for all Federal lobster permit holders, a trap cap reduction for Area 3 (the offshore Georges Bank and Southern New England Areas), and ownership caps for Area 2 (south of Massachusetts and Rhode Island) and Area 3 permit holders.

Based on a review of Delaware's enforceable coastal zone management policies and the analysis contained in the draft environmental assessment, NOAA's National Marine Fisheries Service has determined that this action is consistent to the maximum extent practicable with these policies. The management measures implemented under this Plan are intended to conserve the lobster resource that may occur in Delaware's state waters by limiting catch and promoting sustainable utilization.

The draft environmental assessment for this action, which supports the conclusion of consistency with Delaware's enforceable coastal zone management policies, is attached. We will publish a rule to propose these management measures in the *Federal Register*.

This letter is submitted pursuant to provisions of 15 CFR 930 *et seq*. and section 307 of the Coastal Zone Management Act of 1972, as amended. We are requesting that you advise us of your agreement or disagreement with our determination. In the event that there is no response from your agency within 60 days of receipt of this letter, we will presume your agency's

concurrence with our determination of consistency. If you have any questions, please contact Allison Murphy at Allison.murphy@noaa.gov, 978-281-9122.

Sincerely,

Michael Pentony
Regional Administrator

cc: Ms. Laura Mensch, Principal Planner
Ms. Jennifer Holmes

Draft Environmental Assessment –Regulatory Impact Review – Initial Regulatory Flexibility Analysis

To Consider Modification to the Lobster Permit Trap Allocations in Areas 2 and 3 of the American Lobster Fishery and

Coastwide Harvester Reporting

based upon management measures specified in the

INTERSTATE FISHERY MANAGEMENT PLANFOR AMERICAN LOBSTER

Prepared by:

National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

NOAA FISHERIES
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

February 2022

Cover

1.0 Executive Summary

Purpose and Need

The purpose of this action is to complement measures outlined in Addenda XXI, XXII, and XXVI to Amendment 3 to the Interstate Fishery Management Plan for American Lobster. This action is needed to scale the Southern New England lobster fishery to the diminished size of the Southern New England resource by implementing changes to trap allocations and the trap transfer program, address the poor condition of the Southern New England lobster stock, and collect improved fishery-dependent through expanded harvester reporting. Additional details are provided in Section 4.6.

Proposed Action

This action includes preferred alternatives for aggregate trap caps in Area 2, aggregate trap caps and active trap cap reductions in Area 3, and coastwide mandatory electronic harvester reporting.

The preferred alternative for Area 2 would cap all entities at 800 active traps two years after the last wave of trap reductions (i.e., 2023). This option would further restrict the fishery by establishing a *de facto* owner-operator fishery because Federal permit holders who may currently hold an unrestricted number of Area 2 traps, limited by the number of permits that are held, would be restricted to only 800 traps. Permit holders with allocations that exceed the aggregate permit caps would be capped at their allocations and prevented from obtaining additional traps.

The preferred alternative for Area 3 would cap entities at 5 times the active trap cap and lower the active trap cap over a 3-year period, beginning in 2023:

Timeline	Active Trap Cap	Aggregate Permit Cap
2023	1,805 traps	9,025 traps
2025	1,629 traps	8,145 traps
2025	1,548 traps	7,740 traps

Permit holders with allocations less than the aggregate permit cap would be allowed to build up to those caps. Permit holders with allocations that exceed the aggregate permit caps would be capped at their allocations and prevented from obtaining additional traps.

The preferred reporting alternative would require all Federal lobster permit holders to submit a trip-level harvester report, using the Federal vessel trip report, electronically no more than 48 hours following the completion of a trip including the submission of up to 8 additional data fields.

Summary of Impacts

Human Communities/the Social-Economic Environment

The preferred alternatives are expected to result in mixed impacts to human communities/the social-economic environment. The preferred Area 2 and 3 alternatives are expected to have short-term slight negative and long-term slight negative to slight positive impacts. In the short term, slight negative impacts are expected as these measures are expected to reduce the number of traps allocated to some permit holders. The loss of trap allocation would result in negative short term impacts due to decreased landings and associated revenue. In the longer term, slight positive impacts are expected if trap reductions are realized and decrease fishing pressure on the lobster resource, which may help to improve the status of the Southern New England stock and thus improve future catch and revenue of fishery participants. On the other hand, slight negative impacts could be expected in the longer term if latent

effort is activated by these measures and increase fishing pressure on the lobster resource, resulting in increased amount of effort and fishing mortality and, thus, decrease future catch and revenue of fishery participants.

Target Species

The preferred alternatives are expected to result in mixed impacts to the target species, American lobster. The Gulf of Maine/Georges Bank stock is at near record high abundance, but the Southern New England stock is experiencing recruitment failure. No impact is expected on the Gulf of Maine/Georges Bank stock, as relatively small portion Gulf of Maine/Georges Bank stock area overlaps with Areas 2 and 3 and these measures are expected to result in comparatively few traps being retired from the Gulf of Maine/Georges Bank stock area. The impacts to Southern New England stock are expected to be slightly positive to slightly negative. Slight positive impacts are expected if trap reductions are achieved which may help to improve the status of the Southern New England stock. Slight negative impacts could be expected if latent effort is activated by these measures, resulting in increased amount of effort and fishing mortality. The preferred reporting alternative is expected to have no direct impacts and slight positive indirect impacts to the target species. No direct impacts are expected because establishing harvester report does not alter the effort, location, or timing of the fishery. Slight positive indirect impacts can be expected because harvester reporting will fill the current data gap, and improve stock assessments and management of the lobster resource.

Other Affected Species

The preferred alternatives are expected to result in slight positive impacts to other affected species. Jonah crabs and red crabs are caught as bycatch in lobster traps, both are data poor, with undetermined stock status. Atlantic herring, skates, Acadian redfish, and menhaden are all used as baits, with mixed stock assessment status. The preferred Area 2 and 3 alternatives are expected to result in slight positive impacts on other affected species. Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. The preferred reporting alternative is expected to have no direct impacts and slight positive indirect impacts to other affected species. No direct impacts are expected because establishing harvester report does not alter the effort, location, or timing of the fishery. Providing trip-level data in an electronic format will indirectly benefit non-target (incidental and bycatch) species, especially those that are managed by annual catch limits and quotas.

Physical Environment

The preferred alternatives are expected to result in mixed impacts to the physical environment. The preferred Area 2 and 3 alternatives are expected to result in slight negative impacts on the physical environment. Traps used in the fishery are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance, resulting in slight negative impacts. This action may result in fewer traps in the water, and thus would have less negative effects than the status quo. The preferred reporting alternative is expected to result in no direct impacts and slight positive indirect impacts on the physical environment. No direct impacts are expected because establishing harvester report does not alter the effort, location, or timing of the fishery. Slight positive indirect impacts can be expected because harvester reporting will improve the data available for monitoring fishing-related impacts to habitat.

Protected Species

The preferred alternatives are expected to result in mixed impacts to protected species. The preferred alternatives for Areas 2 and 3 are expected to result in slight negative to moderate negative impacts on protected species (Endangered Species Act listed and Marine Mammal Protection Act protected species). The lobster fishery uses pot/trap gear. Interactions between the vertical lines associated with pot/trap gear and Endangered Species Act listed species of large whales and sea turtles, and Marine Mammal Protection Act protected (non- Endangered Species Act listed) species of large whales and bottlenose dolphins have been observed or documented. This action may result in fewer traps in the water and therefore, fewer vertical lines in the water. This in turn, may reduce the risk of entanglement and therefore, the preferred alternatives would have less negative effects to protected species than the status quo. The preferred reporting alternative is expected to result in no direct impacts on protected species compared to current fishery conditions, but slight positive indirect impacts. No direct impacts are expected because requiring reporting is not expected to have an effect on where lobsters are caught, or influence or provide any incentive for vessels to change fishing behavior, effort, or area fished. The preferred reporting alternative is expected to result in slight positive indirect impacts to protected species because obtaining previously unavailable spatial data on the fishery is critical for assessing potential entanglement risk and would address the current, urgent need for improved fishing effort and spatial data to inform measures to reduce entanglement risk.

2.0 List of Acronyms

ACRONYM	DEFINITION
ABC	Annual Biological Catch
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ACL	Annual Catch Limit
ALWTRP	Atlantic Large Whale Take Reduction Plan
ALWTRT	Atlantic Large Whale Take Reduction Team
AM	Accountability Measure
ANPR	Advance Notice of Proposed Rulemaking
ASMFC	Atlantic States Marine Fisheries Commission
BOEM	Bureau of Ocean Energy Management
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CL	Carapace Length
CPUE	Catch Per Unit Effort
CZMA	Coastal Zone Management Act
DAS	Days-at-Sea
DMR	Maine Department of Marine Resources
DPS	Distinct Population Segment
DPSWG	Data Poor Stocks Working Group
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FMP	Fishery Management Plan
FR	Federal Register
GARFO	Greater Atlantic Regional Fisheries Office
GBK	Georges Bank
GOM	Gulf of Maine
ISFMP	Interstate Fishery Management Plan
ITS	Incidental Take Statement
ITT	Individual Transferable Trap Program
LCMA	Lobster Conservation Management Area
LCMT	Lobster Conservation Management Team
LOF	List of Fisheries

MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
mt	Metric Ton
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fishery Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic & Atmospheric Administration
OCC	Outer Cape Cod
PBR	Potential Biological Removal
SNE	Southern New England
SSC	Scientific and Statistical Committee
STDN	Sea Turtle Disentanglement Network
TAC	Total Allowable Catch
TC	Technical Committee
TEWG	Turtle Expert Working Group
USFWS	United States Fish and Wildlife Service
VEC	Valued Ecosystem Component
VTR	Vessel Trip Report
YOY	Young of the Year

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4.0 Introduction

4.1 Atlantic Coastal Act and the Atlantic States Marine Fisheries Commission

From Maine through North Carolina, American lobsters are managed under dual state and Federal regulatory authorities, whereby individual states manage the resource within their state waters (0-to-3 nautical miles from the shoreline) and the Federal government has primary jurisdiction over the resource in waters 3-to-200 nautical miles from the shoreline (also known as the Exclusive Economic Zone, or EEZ). Until the late 1990s, Federal authority to regulate the lobster fishery was controlled by the Magnuson-Stevens Fishery Conservation and Management Act[1] (Magnuson-Stevens Act or MSA) and Federal management measures were implemented by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) through a Fishery Management Plan (FMP) developed by the New England Fishery Management Council[2] (NEFMC) and approved by the Federal government.

This began to change in 1993, when Congress passed the Atlantic Coastal Fisheries Cooperative Management Act[3] facilitating a state-oriented fishery management structure for American lobster and, in practical terms, strengthening the role of an organization known as the Atlantic States Marine Fisheries Commission[4] in the development of management measures for the resource. Since passage of the first American lobster regulations under the Atlantic Coastal Act in 1999, management measures deemed necessary for the protection of the resource are advanced by the Commission through the use of amendments and addenda to the existing Interstate Fishery Management Plan (ISFMP) for American lobster. The Commission prepares these actions on an ongoing, as-needed basis, in consultation with the states and the Federal government. Once new measures are approved through the Commission process, states implement and enforce them. In turn, under the Atlantic Coastal Act, the Federal government is asked to implement management measures for the American lobster fishery that are consistent with and supportive of the actions of the Commission.

Congress's reasons for changing Federal lobster management were straightforward; because approximately 80% of the fishery occurs in state waters, NMFS could not ensure that the Federal FMP, which covered only Federal waters, could accomplish the requisite management objectives under the Magnuson-Stevens Act to prevent overfishing. What was needed, and what the Atlantic Coastal Act provided, was a regulatory structure that more realistically reflected the joint state-Federal nature of the resource and the need for cooperative and coordinated management. Under this regime, Federal management of the American lobster fishery is largely, though not exclusively, influenced by the management recommendations of the Commission.

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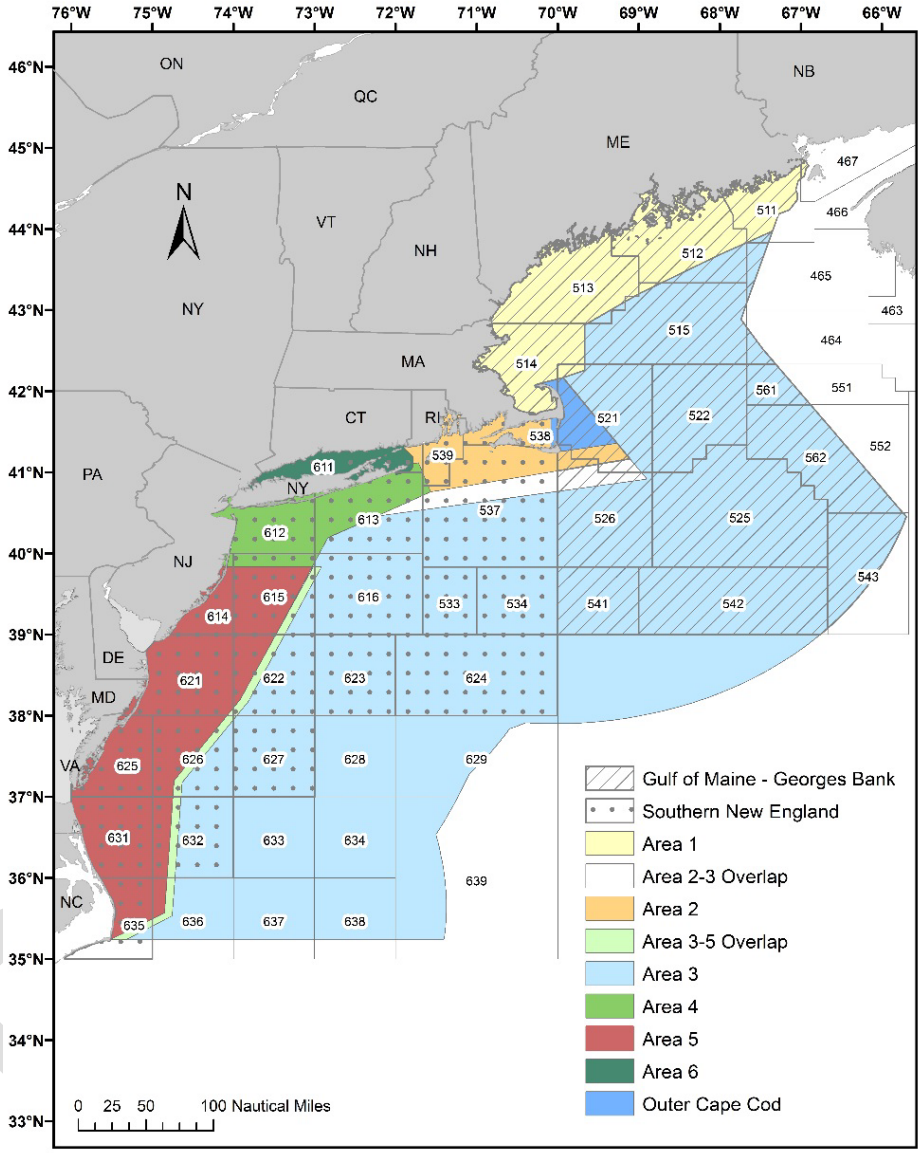
1 16 U.S.C. §§ 1801-1884, (MSA 2007).

2 The fishery management council system was established by Congress under the Magnuson-Stevens Fishery Conservation and Management Act by Congress in 1976 (originally called the Fishery Conservation and Management Act) for the purpose of managing fisheries in a newly recognized EEZ between 3 and 200 miles offshore of the US coastline. Under the Act, eight regional fishery management councils serve as decision-making bodies that develop and recommend specific management measures in the form of fishery management plans, subject to approval and implementation by NMFS.

3 16 U.S.C. 5101-5109; Title VIII of Pub. L. 103-206, as amended, (ACFCMA 1993).

4 The Atlantic States Marine Fisheries Commission was formed in 1942 by the 15 coastal states to improve interstate coordination in the protection and management of marine fisheries resources. It is a "deliberative" body, composed of representatives from the states and the Federal government that serves to facilitate coordination among its members on matters of fishery management. Member states are Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. In a legal sense, the Atlantic Coastal Act did not confer upon the Commission any new authority over state and Federal lobster fishery management. In practical terms, however, that Act provides a means by which recalcitrant states that do not implement necessary management measures approved by the Commission may be, through a deliberative process, subject to a Federal moratorium on fishing activities until such time that the management measures are put in place.

Figure 1. American Lobster Management and Stock Areas[5]



One of the most important changes implemented under this new regime was the establishment of seven Lobster Conservation Management Areas (LCMAs/Areas): Area 1 - Inshore Gulf of Maine (GOM); Area 2 - Inshore Southern New England (SNE); Area 3 - Offshore waters; Area 4 - Inshore Northern Mid-Atlantic; Area 5 - Inshore Southern Mid-Atlantic; Area 6 - New York and Connecticut State Waters (primarily Long Island Sound); and Outer Cape Cod (OCC). All state and Federal management efforts since 1997 have been based on this Area-focused management structure.

4.2 Regulatory Setting for American Lobster

From a Federal perspective, lobster management has an unusual construct in that management actions largely emerge through a state-initiated Commission process in which Federal managers act in coordination with the Commission, rather than through unilateral action such as is seen in many other

[5] NEFMC

areas of fishery management. On the one hand, this construct is a practical response to the state/Federal jurisdictional realities behind lobster management, since lobster harvests occur primarily within state waters. On the other hand, it also serves to spotlight the differences in jurisdictional perspectives: though a broad view of the needs of the overall fishery may suggest one type of action from a Federal perspective, NMFS may reject that option because it is deemed to be inconsistent with the National Standards as articulated under the MSA. Furthermore, when implementing regulations, it is the obligation of Federal lobster managers to ensure that those regulations are compatible with the Commission's ISFMP for lobster. Because management interests can and often do diverge however, not only between the states and the Federal lobster managers but also between the states themselves, finding compatible regulatory approaches to lobster management can be challenging. These challenges are explained in greater detail below.

The Commission's current Lobster Interstate Management Plan was first adopted in December 1997 under Amendment 3 to the ISFMP. Amendment 3 established the framework for area management, which in addition to establishing the seven Areas, also established industry-based teams, known as Lobster Conservation Management Teams (LCMTs), that were encouraged to develop management programs to suit the needs of the Areas while meeting the stock rebuilding objectives established in the ISFMP.

With the approval of Amendment 3, a relatively straightforward approach to lobster management was envisioned: Scientists assess the stock; industry committees recommend preliminary measures to the Lobster Board for consideration addressing assessment findings and the Board, in turn, forwards appropriate LCMT proposals to Technical Committees (TC) to review the industry-proposed measures for scientific integrity. Next, the Commission's Lobster Board synthesizes this information into the Lobster Plan, votes to approve it, and then sends it to the states and Federal government so that they can implement compatible Area-specific regulations. In short, the Commission identifies a singular Plan that the states and NMFS enact in a unified, compatible, and consistent fashion. While this approach may seem straightforward, in reality lobster management is far more nuanced and complicated.

Since the passage of Amendment 3 in 1997, lobster management has evolved into an increasingly complex regulatory environment. Individual states (through the LCMTs, via the Commission) have advanced numerous management measures, some of which are out-of-sync with each other, while the Federal government has struggled to promote regulatory consistency between state and Federal management efforts through its own rulemaking processes in response to Commission actions. This, combined with the fragmented nature of state/Federal lobster management and the pace at which new management measures continue to be advanced through the Commission process, have made the perceived need for consistency -- and inability to achieve it -- more acute. In response, NMFS has placed strong emphasis on improving coordination between itself and the states via the Commission. While in many ways there is more coordination than ever as a result, these efforts have so far been unable to keep pace with the myriad of management actions that continue to be advanced. A number of factors contribute to these circumstances.

The Commission's inherent structure:

- The Commission (and its Lobster Board) is not a singular entity so much as it is an amalgamation of multiple independent and sovereign entities. Specifically, the Lobster Board is composed of eleven (11) sovereign states and the Federal Government, which is itself sovereign. Each sovereign government has its own laws and authorities that govern what it can do and how it can do it. Further, the Lobster Plan is open to interpretation, so one's opinion as to what constitutes compatible and consistent regulations might vary from one government to another.

- Governments have different rulemaking apparatuses – e.g., some states can create regulations quickly by executive action, while others need legislative approval – as a result, regulations are often enacted on different timelines. NMFS does not typically begin its rulemaking for an FMP action until the Commission process ends, which in combination with existing detailed Federal rulemaking requirements, causes a lag time between when the states create their regulations and when NMFS can create its regulations.[6] Accordingly, while there may be one singular Commission Lobster Plan, in reality there are twelve independent and separate sets of regulations implementing that Plan – one for each state and federal government.[7] In this environment, the challenge to maintain regulatory consistency amongst all twelve sovereigns has become increasingly more intense.

State/Federal regulatory disconnects:

Regulatory consistency across state/Federal jurisdictions is a particular challenge to NMFS due to two unique characteristics of the Federal fishery.

- First, NMFS has territorial jurisdiction -- and thus must be concerned about consistency -- in six (6) of the seven (7) management areas, while the majority of Commission states have territorial jurisdiction over only a single lobster management area (see Table 2, below).[8] As the Commission states have implemented requirements that are increasingly divergent from one another, the ability for NMFS to implement consistent measures across different Areas that are also consistent with the Plan approved through the Commission process has become more difficult. Further complicating this effort is the fact that Federal permit holders are allowed to designate multiple management areas on their permit, (subject to whatever regulations exist in those management areas, including regulations that might limit access). Under these conditions, the difficult challenge for NMFS is to achieve consistency with Commission area-specific management measures while maintaining a more holistic approach that considers consistency impacts in all Areas over which the Federal government has territorial jurisdiction, and in all Areas where Federal permit holders fish, which is to say everywhere in the fishery.

[6] Occasionally, this lag time can be of benefit insofar as it allows time for further reflection and potentially, revision, of Commission addenda that are created and passed with such speed that details are sometimes necessarily left unresolved to future dates. For example, the first Commission transferability program was but one paragraph in Addendum III (Outer Cape Cod – 2002). It became far more evolved in Addendum IV (Area 3 – 2003) and many critical details remained unresolved until the passage of Addendum XII (Transferability – 2008). Another example is the Area 2 limited access plan that was passed in Addendum III (2002), withdrawn in Addendum VI (2005), re-approved in Addendum VII (2006), with foundational details being added in Addendum XII (2008).

[7] In fact, given that the twelve jurisdictions enact regulations for each of the seven (7) separate and distinct lobster management areas, there exists the possibility for dozens of similar, but potentially non-identical lobster management regimes.

[8] The exceptions are New York and New Jersey, which have territory in just two management areas, and Massachusetts, which has territorial jurisdiction in three areas--although Massachusetts law mandates that its fishermen must choose and thus fish in only one of these "near-shore" management areas. (Lobster Management Areas 1, 2, 4, 5 ,6 and Outer Cape Cod are sometimes referred to as "near-shore" management areas because their western boundaries run to the beach and are thus "near the shoreline." Area 3, whose western-most boundary is miles from the coast, is sometimes referred to as the "offshore" management area.)

Figure 2: State/Federal Territorial Jurisdiction over Management Areas.

State / Federal Government	Nearshore Lobster Management Area
Maine	Area 1
New Hampshire	Area 1
Massachusetts	Area 1, 2, Outer Cape Cod
Rhode Island	Area 2
Connecticut	Area 6
New York	Area 4, 6
New Jersey	Area 4, 5
Delaware	Area 5
Maryland	Area 5
Virginia	Area 5
North Carolina	Area 5
NMFS	Area 1, 2, 3, 4, 5, Outer Cape Cod

- A second challenge to consistency that is unique to NMFS involves the nature of so-called "dual permit holders." Dual permit holders are individuals that hold two permits: A state permit allowing the person to fish in state waters 0-to-3 nautical miles from shore; and a federal permit allowing the person to fish in Federal waters beyond 3 nautical miles from shore.[9] Although fishing under two permits, these dual permit holders operate their fishing businesses as a singular entity and the Commission, under Addendum XII provisions, considers their fishing practices and fishing history to be unified and indivisible. This creates further incentive for the involved state and Federal jurisdictions to make consistent decisions on the dual permit holder and disincentive (and potential for chaos) should the jurisdictions not do so.
- For an individual state, dual permit holder consistency is less complex because it needs to seek compatibility with NMFS only. And even in so doing, a state need only look at the Commission Plan and interpret it as it sees fit because NMFS is usually unable to preemptively create Federal regulations in time to guide the states during the state regulatory process. For the Federal government, however, compatible dual permit holder regulations requires attempted consistency with each of the eleven (11) managing states, which are themselves not always consistent with one another. Furthermore, given the time lag between state and Federal rulemaking, NMFS can often be left trying to reconcile up to eleven sets of independently developed and already enacted regulations before it can issue its own regulations.

It is within this overall regulatory context, where state/Federal regulatory consistency has become increasingly difficult to achieve, that the proposed management measures that are the subject of this EA are being considered by NMFS.

4.3 Most Restrictive Rule

Given the multi-jurisdictional nature of the lobster fishery, there may be times when the states, or the state and Federal Government, have different regulations that apply to the same situation. Such a situation could place the permit holder in a conundrum: e.g., to follow one regulation, the permit holder might run

[9] It may also be possible in certain limited situations to have dual state permits, but such situations are rare and not germane to the present analysis.

afoul of the other regulation. To avoid such a scenario, the Commission created what is known as the "most restrictive rule." The "most-restrictive rule," requires that permit holders abide by the more restrictive regulation to the extent they are confronted with differing regulations applying to the same situation.

The "most restrictive rule" is a particularly important governing mechanism in determining the number of taps an individual may fish. There are two reasons for this: First, there may be circumstances where a dual permit holder has a different allocation on the state permit as compared to the Federal permit. Under the "most restrictive rule" the dual permit holder would only be allowed to fish the lower of the two differing allocations. Second, there are many times when a permit holder designates multiple LCMAs on their permit. These LCMAs might have different, even competing, regulatory measures such as different trap caps or gauge sizes. Under the "most restrictive rule," the permit holder would have to abide by the more restrictive measures in all areas, e.g., the lowest trap cap and most restrictive gauge size in all designated areas.

While the most-restrictive rule has broad applications in lobster management, for purposes of this EA, its importance relates to two concerns regarding effort control:

- Permit holders who designate multiple LCMAs on their permits could, when combining LCMA allocations, double or triple count the number of traps they have historically fished and in this way proliferate the number of traps in the lobster fishery either through their own fishing practices or through the sale of those allocations to other permit holders;
- Dual permit holders (those possessing both state and Federal permits) can similarly double count their allocations by, for example, selling their Federal permit (and the trap allocation that accompanies it) to another fisherman, then electing to fish in an Area without historic participation requirements.

The most restrictive rule was passed by the Commission under Amendment 3 in 1997 and in Addendum XII in February 2009. This was followed by Federal rulemaking (64 FR 68228, December 6, 1999) implementing similar requirements. The most-restrictive rule has broad applications in lobster management and was established originally in recognition of the problems that can arise when permit holders become subject to multiple management regimes, be it state/Federal or multi-Area regimes. Fundamentally, its purpose is to act as a sort of "compass" by which a permit holder can navigate through seemingly competing management regimes. It does this by requiring that, when a permit holder is governed by multiple management regimes (either dual state/Federal permits or multiple Areas), the more restrictive management measure prevails. This rule applies across the spectrum of lobster management requirements, including min/max gauge sizes, vent restrictions, or trap allocations.

4.4 SNE Lobster Stock Management History and Addenda XXI and XXII to Amendment 3 to the Interstate Fishery Management Plan for American Lobster

At the Commission's May 2010 Lobster Management Board meeting, the Commission's Lobster TC presented a report on the status of the SNE lobster stock. The report, entitled "Recruitment Failure in the Southern New England Lobster Stock" (ASMFC, 2010), indicated that the SNE stock is critically depleted and well below the minimum threshold abundance. The report was based on the TC review of new data from trawl surveys, sea sampling, ventless trap surveys, and young-of-the-year (YOY) indices, which became available after the 2009 stock assessment. That assessment concluded that the stock's reproductive capability and abundance continued in a persistent downward trend, with abundance at its lowest levels since the early 1980's and concluded that and the SNE stock was overfished, but overfishing was not occurring. In the report to the Commission's Lobster Board, the TC declared that the SNE stock

is experiencing recruitment failure due to a combination of environmental factors and continued fishing mortality, which are preventing the stock from rebuilding.

In its recommendations for a management response to the poor stock conditions, the TC's report suggested a five-year moratorium on lobster harvest in the SNE stock area. Although the stock is not overfished and overfishing is not occurring, the TC indicated that even low levels of fishing mortality would exacerbate poor stock conditions and hamper stock rebuilding. The report cited "overwhelming environmental and biological" changes, along with fishing mortality, have a negative impact on the stock's chances of rebuilding. Because a moratorium would halt the collection of fishery-dependent data needed for stock assessments and monitoring, the TC recommended that fishery-independent data collection programs such as trawl surveys and YOY and larval sampling, be intensified during the fishery closure to allow for ample data to monitor the conditions of the stock.

The May 2010 meeting, when the Board first learned of the TC's report on the SNE stock conditions, was the same meeting that NMFS debuted a draft environmental impact statement (EIS), requesting comments on the alternatives analyzed for a limited entry in Area 2 and the Outer Cape and Individual Trap Transfer (ITT) program for the SNE fishery, as recommended by the Lobster Board through previous Addenda. The Board was so concerned about the TC's report and how to address the dire findings; it requested that NMFS delay any action on the pending limited access and ITT program until such time that the Board has sufficiently addressed the poor stock conditions.

In July 2010, the Commission held a special meeting of the Board in Rhode Island for the express purpose of consideration of a draft addendum to the Commission's Plan to address the SNE recruitment failure with management options ranging from no action to a fishery moratorium. The meeting was widely attended by members of the lobster industry as well as the media and congressional delegations. The public was given an opportunity to comment on the issue and NMFS provided a summary of how fishery disaster assistance programs work should the states endeavor to seek it from the Federal government.

At their August 2011 meeting, the Board took action by approving a draft addendum, Addendum XVII, for public comment that would reduce fishing exploitation by 10 percent, applying to all gear types, beginning in 2013. The draft addendum provided a suite of options that could be used to develop a plan specific to each SNE lobster management area (Areas 2, 3, 4, 5, and 6) to achieve the mandated exploitation reductions, such as changes to the minimum and maximum carapace sizes, closed seasons, and v-notching.

The Board reviewed the public comments and debated the elements and options of the draft addendum during its November 2011 meeting. In the motion to adopt the addendum, states were required to convene the LCMTs for the SNE Areas to provide input on specific measures to employ, on and area-by-area basis, to achieve the 10 percent reduction in exploitation. Those plans were reviewed by the TC and adopted into the addendum at the following meeting in February 2012, and required the measures to commence in July 2013.

As outlined above, the need for consistency in state and Federal trap allocations, and the speed at which NMFS could implement Addendum XVII measures lead to a delay in the Commission's implementation schedule. The first year of reductions took effect on May 1, 2016, with a 25-percent reduction for all Area 2 allocations and a 5-percent reduction for all Area 3 allocations. Following that, 5 years of 5% reductions were scheduled in Area 2 and 4 years of 5% reductions were scheduled for Area 3. Table 1 shows how a typical 800-trap Area 2 allocation and an 800-trap allocation in Area 3 would decrease due

to the annual trap reductions if the permit holder took no action to buy or sell traps through the Trap Transfer Program, discussed in greater detail below.

Table 1. Areas 2 and 3 Trap Reduction Scenario Based on an 800-Trap Allocation

Year Count	Fishing Year (Effective May 1)	Area 2 Percent Reduction	Area 2 Subsequent Allocation (# of Traps)*	Area 3 Percent Reduction	Area 3 Subsequent Allocation (# of Traps)*
1	2016	25 %	600	5%	760
2	2017	5%	570	5%	722
3	2018	5%	542	5%	686
4	2019	5%	515	5%	652
5	2020	5%	489	5%	620
6	2021	5%	465	NA	NA

* Assumes an 800-trap allocation prior to year 1 and the permit holder does not engage in the Trap Transfer Program.

When the Board voted on Addendum XVII in November 2011, its approval was contingent upon the development of a new addendum, Addendum XVIII that would serve as the second of a two-phase initiative to address the poor stock conditions in SNE. Addendum XVIII was developed with the intent to scale the SNE fishery to the diminished size of the SNE stock. In the motion to adopt the addendum, Area-specific combinations of minimum carapace length increases, and closed seasons were approved. The addendum was structured so that each affected lobster management area could select one or more of the measures to meet the intended reductions.

Consequently, the states and NMFS have enacted regulations to implement the broodstock measures and the trap reductions. In 2015, NMFS published a final rule that established the measures included in Addenda XVII and XVIII (80 FR 2028, January 15, 2015). The changes to the Area 3 maximum size and the mandatory v-notching requirements for Areas 2 and 4 took effect on May 1, 2015, and the series of annual trap reductions for Areas 2 and 3 begin in May 2016 to coincide with the new trap transfer program for those areas.

In 2014, the TC provided an update on the effectiveness of the area closures for Areas 4 and 5 as well as the other measures intended to curb exploitation. The TC revealed that the measures had the desired effect of limited exploitation in Area 5, but the combination of measures did not sufficiently reduce exploitation in Area 4. As a result of this information, the Board took action to change the timing of the seasonal closure from February 1 – March 31, to April 30 – May 31, in order to reduce fishing mortality by closing the fishery when landings are higher. At the recommendation of the Commission and to maintain consistency between state and federal waters, NMFS published a final rule (80 FR 69619, November 10, 2015) that changed these closure dates in Area 4 to coincide with the modified dates adopted into the Commission's Plan. Following these actions, the Lobster Board continued to refine management measures in LCMAs 2 and 3, through Addenda XXI and XXII, which are the subject of this EA. These addenda aimed to institute the concept of trap banking during the trap reductions schedule, institute ownership caps in both areas, and lower the active trap cap in Area 3. These addenda are discussed in greater detail below.

Despite the Commission's actions to address the deteriorating SNE stock conditions, the 2015 stock assessment and peer review, which the Board approved in August 2015, indicated that the SNE stock was continuing to experience recruitment failure, with recruitment, abundance, and other important indices at historic lows, despite reports of increased catches by lobster fishermen. Subsequent analyses completed by the TC at the Board's request revealed that an estimated 75-percent reduction in fishing mortality

would be needed to maintain the stock at its current level of spawning stock biomass – a level that remains far below the abundance threshold established for the SNE stock. The Board convened a sub-committee of state, Federal, scientific and industry representatives to discuss the issue and provide management alternatives to the Board in November 2015 to address the dire condition of the SNE stock. Following the Board meeting, the Commission developed draft Addendum XXV in an attempt to address the poor condition of the SNE stock. The Commission published Addenda XXV in 2015, which proposed measures that would address the poor condition of the SNE stock. During this time, NMFS deferred action on Addenda XXI and XXII while the Commission developed draft Addendum XXV, because elements of Addendum XXV could have rendered the measures in the prior addenda unnecessary. In August 2017, the Commission decided to take no further action on Addendum XXV and requested that NMFS advance the measures in Addenda XXI and XXII for Federal rulemaking.

4.4.1 Area Qualification, Trap Reductions, and the Trap Transfer Program

When the Commission took action to implement the two-pronged approach to address the poor conditions of the SNE stock through a series of annual trap reductions in Areas 2 and 3, along with the broodstock protection measures, the timing was ripe for implementation of the Trap Transfer Program and Area 2 and Outer Cape Cod limited entry. NMFS published a final EIS and final rule in April 2014 (79 FR 19015) and began the process of qualifying Federal lobster permit holders for the Area 2 and Outer Cape cod trap fishery and allocating traps to those qualified permits. The qualification and allocation program had already been completed in a previous action for Area 3 based on Commission recommendations in earlier plan addenda, culminating the qualification of 137 Federal lobster permits (now 136) for the Area 3 lobster trap fishery. Those initial allocations were reduced through multiple annual trap reductions aimed at reducing latent effort in the fishery. Currently, a Federal permit with an Area 3 allocation may acquire and fish up to 1,945 lobster traps in Area 3.

In 2015, NMFS, working in cooperation with the relevant Area 2 states, completed the qualification and allocation process for the Federal Area 2 and Outer Cape cod lobster trap fishery based on criteria set forth in the Commission's Lobster Plan. Because the states had already implemented the limited entry process for Area 2 lobstermen based on the same Plan criteria, NMFS looked closely at the allocation decisions on state licensees who also held Federal lobster permits. As a result of this data sharing and cooperation, NMFS was able to effectively match the allocations made by the states, understanding that the state and Federal trap fishing history of a dual permit holder are one and the same. This process avoided the administrative and regulatory disconnects that could have occurred if the states and the Federal government made disparate allocative decisions on a single entity, which ultimately would have made the transferable trap program, administratively impossible.

At the same time, NMFS and the states were working toward implementing the Trap Transfer Program. While the 2014 final rule approve the program, NMFS stated that the initial suite of management actions for transferability could not be implemented until a cooperative, interjurisdictional trap transfer database was implemented (ASMFC Lobster Management Board Minutes, August 2013). That state/Federal database was complete in 2015. NMFS and the states launched the trap transfer program in 2015, with permit holders able to trade partial trap allocations for Area 2, Area 3, and the Outer Cape Area, during a two-month administrative window, with revised allocations implemented on May 1, 2016. The program allows any Federal permit holder, even those whose Federal permits did not initially meet the qualification criteria for Area 2, 3, or the Outer Cape Areas, to gain access by purchasing partial trap allocation from qualified permit holders. Permit holders were allowed to transfer traps after being assessed the 25-percent trap reduction in Area 2 and five percent trap reduction for Area 3 in May 2016, providing them the ability to build up through a transfer prior to the cuts being activated. The states and

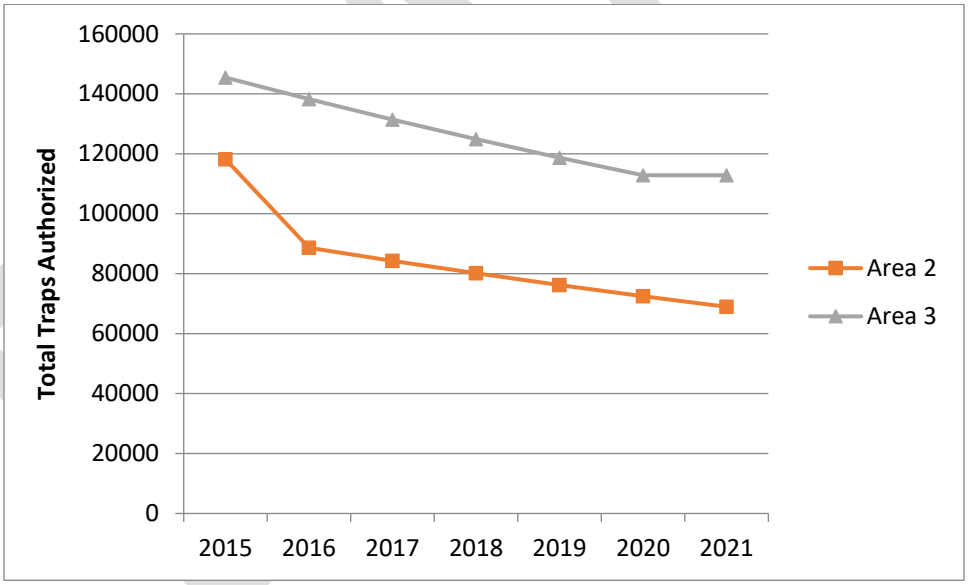
NMFS cooperatively tracked the trap transfers with an interjurisdictional trap transfer database and through routine communications to ensure that dual permit holders had consistent allocations between state and Federal permits. For Area 2, the initial qualification period resulted in a cumulative trap allocation of just over 118,000 traps amongst 164 Federal lobster permits, with the vast majority of permit holders hailing from the states of Massachusetts and Rhode Island. The first year of trap cuts reduced the overall Area 2 trap allocation to 88,664 traps.

Table 2. Area 2 and Area 3 Traps Authorized and Subsequent Reduction Schedule*

Year	Total Area 2 Traps Authorized	Total Area 3 Traps Authorized
2015	118,188	145,433
2016	88,664	138,232
2017	84,271	131,392
2018	80,151	124,888
2019	76,194	118,712
2020	72,495	112,832
2021	68,953	112,832

*Annual cumulative allocations do not account for reductions due to conservation tax from trap allocation transfers

Figure 3. Numbers of Authorized Traps Projected for Areas 2 and 3, Due to Trap Reductions



As traps have been retired from the fishery due to these schedule trap reductions, the trap transfer program instituted a 10-percent conservation tax on each transaction that permanently retires 10 percent of the traps purchased in a transaction from the fishery. Since 2016, this has retired approximately 4,000 traps from the fishery. A more detailed summary of the results from the trap reductions and trap transfer program is included in Section 6.5.4.

4.4.2 Need to Reduce Latent Effort

The Commission's adoption of Addenda XXI and XXII was part of a multi-faceted action prompted by the results of the 2009 lobster stock assessment which made two important conclusions: 1) That portions

of the fishery (specifically, the SNE stock unit) were "depleted," as evidenced by reduced stock abundance[10], and 2) that the number of traps being fished suggests that there is a high level of effort occurring in portions of the fishery. In its initial response to the results of the assessment the Commission's Lobster Board approved Addendum XVII in 2011 to provide increased protection for lobster broodstock as a means of reducing fishing exploitation. Acknowledging that additional measures were needed to address the deteriorating SNE stock conditions, the Board adopted Addendum XVIII in 2012. That action focused on concerns with latent trap effort in the fishery and implemented a series of annual trap reductions for Areas 2 and 3 to scale the SNE fishery to the diminished size of the resource as a means of applying further protection to the stock.

Despite efforts to address latent effort in Addenda XVII and XVIII, the Board remained concerned that more needed to be done to ensure that potential effort would not re-enter the fishery in SNE. Specifically, the Board acknowledged that the limited access programs for Areas 2 and 3 may have effectively allocated more traps than those that were actively fished when the allocation programs were adopted. This concern was largely based on the differences in the qualification periods and criteria for the various limited access programs. With respect to Area 2, the limited access program was adopted during a time of attrition in the fishery, but based the allocations on activity during a historically high level of fishing effort. Therefore, the industry was allocated a level of traps that exceeded present levels of effort, which threatened to undermine the sustainability benefits of trap reductions should the stock improve and more effort activated. Some questioned the long-term viability of the fishery, particularly in Area 2, as the 2015 stock assessment warned of further deterioration of the stock, with conditions expected to worsen in the coming years. This sentiment was expected to have a chilling effect on trap transfers, as permit holders would likely take a cautious approach to business plan modifications. Given these factors, the Board acted to modify the Area 2 and Area 3 trap transfer programs through Addenda XXI and XXII to incorporate measures to cap effort, and reduce the potential for an entity to exert significant influence on the lobster industry, by limiting the amount of traps an individual or business may hold.

The Board saw the implementation of the Trap Transfer Program as another way that latent effort could become active, as permit holders could purchase and activate latent traps as a means of optimizing their businesses and mitigate the economic impacts associated with the annual trap reductions.

The Board adopted measures in Addenda XXI and XXII, discussed below that would modify trap allocations and trap transfer provisions to allow fishing businesses to maintain flexibility and remain profitable through the remaining series of traps cuts while addressing latent effort. Both Addenda XXI and XXII indicate that unique eligibility periods and qualifying criteria for the Area 2 and Area 3 trap fisheries resulted in disparate levels of latent trap effort in these areas. Consequently, the Commission's Lobster Board set out to craft measures specific to each of the two management areas to remove latent effort, prevent speculation and increase the potential for trap limits to effectively reduce harvest and rebuild the SNE stock over time.

4.4.3 Addendum XXI

Addendum XXI was developed as part of a continued response to the 2009 stock assessment. The Addendum was initiated as part of an ongoing attempt to scale the SNE fishery to the diminished size of the SNE resource. It aimed to address and remove latent effort from the fishery, allowing trap limits to be effective at reducing harvest and rebuilding the stock. It also aimed to prevent inactive

[10] The 2009 American Lobster Stock Assessment states, "(t)he SNE stock is in poor condition based on the recommended reference points," and that portions of the GOM stock unit (statistical area 514)" continued to experience very high exploitation rates and declines in recruitment and abundance since the last assessment", (ASMFC 2009a).

traps from being reactivated into the fishery in the future as the stock grows. Accordingly, the Board approved Addendum XXI in 2013 and included measures for Areas 2 and 3, described in detail below.

Area 2 Management Measures

The Area 2 measures in Addendum XXI would allow a permit holder (entity) to have 1,600 Area 2 traps (800 active and 800 banked) associated with a single Federal lobster permit as allowed under the **Single Ownership Cap** provision of the addendum. Addendum XXI states that

> "…an entity may not own more than 1,600 traps (800 active and 800 banked traps)."

The Federal lobster regulations limit each Federal lobster permit to no more than 800 Area 2 traps, which is the maximum number of traps any vessel may fish. The Single Ownership Trap Cap adopted by the Commission in Addendum XXI allows an entity (individual or corporation) to acquire a total of 1,600 Area 2 lobster traps by purchasing traps in excess of the 800 active trap limit through the annual trap transfer program. As the allocation is reduced by annual trap cuts, the permit holder can activate these excess or "banked" traps to maintain the permit's former allocation of fishable traps, without incurring a 10-percent conservation tax. The current Federal regulations allow a permit holder to purchase traps to replace those lost to annual reductions, up to the active trap cap, with transfers being subject to a conservation tax. Addendum XXI also contemplated a permit holder whose allocation exceeds their recommended cap. It recommended allowing "…those individuals who had more than two (2) permits… [to] retain the number they had…, but may not own or share ownership of any additional permits."

Addendum XXI's **Aggregate Ownership Cap** for Area 2 is intended to reduce the chance of any entity exerting significant control over the markets and maintain cultural and geographic diversity in the fishery. The Aggregate Ownership Cap limits each entity to an allocation of not more than 1,600 Area 2 lobster traps (800 active and 800 banked), regardless of the overall number of permits held by a single entity. Current Federal lobster regulations allow an individual or entity to own more than one Federal lobster permit and the Aggregate Ownership Cap would only limit the number of traps that an entity could own, and would not limit the number of permits. For the purposes of this analysis, we consider an entity to be a person who has any level of interest or ownership in a Federal lobster permit.

The addendum also includes a **Sunset Provision for the Single Ownership Cap**, which would revert the allocation cap to no more than 800 Area 2 traps, effective two years after the last Addendum XVIII trap reduction (May 1, 2023). For the purposes of this evaluation, we interpret this as meaning that a permit holder would have two annual cycles after the last effective year of trap reductions to acquire traps, bank them, and/or add them to his or her active trap allocation. The sunset provision language from Addendum XXI is below:

> *"As allowed under Section 3.1.2 (of Addendum XXI), the single ownership cap allows the purchase and accumulation of traps over and above the active trap cap (currently 800 traps for LCMA 2). This is to allow for businesses that are cut in the upcoming annual trap reductions to efficiently rebuild their business. The single ownership cap will expire two (2) years after the last trap reduction as specified in Addendum XVIII. At that time, LCMA 2 will revert back to the historical 800 active trap cap allocation only."*

Given this language in the Addendum, we believe the Commission's intent was to allow permit holders to acquire trap allocation in excess of the active 800-trap cap and use it annually to make up for trap allocation lost to the annual trap reductions. By allowing the banking of additional traps, the permit holder could potentially obtain enough traps up front to compensate for all the annual reductions and not have to worry every year about finding a transfer partner and acquiring trap allocation. Then, when the

trap reductions are complete, the sunset clause gives permit holders two years to make any final adjustments to their active allocations using banked traps. After the two-year adjustment period, the banked traps are eliminated and permit holders are limited to the active allocations associated with their Area 2 permits, not to exceed 800 Area 2 traps. This was intended to eliminate from the fishery any unused or latent traps that had been banked and revert Area 2 to an owner/operator fishery. The ownership cap would then be 800 traps. Permit holders could still turn to the Trap Transfer Program after banking is eliminated to make further adjustments to their active trap allocations through purchase or sale agreements with other Federal lobster permit holders.

Finally, Addendum XXI states that fishermen who had more than two permits prior to December 2003, could maintain those permits but could not own or share ownership of any additional permits. Although it is not explicit, it is assumed for the purposes of this action that the Commission was referring to permits authorized to fish in Area 2.

Area 3 Management Measures

Area 3 Active Trap Cap - Addendum XXI includes measures intended to inhibit excessive consolidation in the Area 3 lobster fishery. The Active Trap Cap sets an annual trap cap for each Federal lobster permit and refers to the maximum number of traps any vessel with an Area 3 permit may actively fish. The cap, originally set to begin at 2,000 traps, would reduce annually by 5 percent, in step with the annual trap reduction schedule, to a final cap of 1,548 Area 3 traps per permit. Currently, the Federal lobster regulations allow a single Area 3 Federal lobster permit to maintain an active trap allocation of up to 1,945 traps, and each allocation has been subject to an annual 5-percent trap reduction for 5 consecutive years beginning with the 2016 Federal fishing year, as described above. Under the current Federal program, the 1,945 trap limit is not reduced concurrent with annual trap reductions. In other words, the current Federal lobster regulations allow a Federal permit holder to purchase traps through the trap transfer program to offset annual reductions, or to increase the vessel's allocation, up to 1,945 traps in any given year.

4.4.4 Addendum XXII

In its continued effort to address the poor condition of the SNE stock, the Board initiated Addendum XXII, ultimately approving measures October 2013. This addendum changed the single and aggregate ownership limits for Area 3. These changes were designed to maintain the flexibility of the trap transfer program, address latent effort (unfished allocation), and address consolidation.

Area 3 Management Measures

Area 3 Individual Permit Cap – The Individual Permit Cap allows a Federal Area 3 lobster permit to acquire traps in excess of the Active Trap Cap. Effectively the "trap banking" provision for Area 3 permits, it allows the traps in excess of the active trap cap to be activated when annual trap reductions lower the permit's active trap cap.

Area 3 Aggregate Ownership Cap - Addendum XXII includes an Aggregate Ownership Cap for Area 3. The Aggregate Ownership Cap limits each entity to a trap allocation that is no more than five times the Individual Permit Cap for any given year if they have not already accumulated more than that prior to a control date set by NMFS. Several control dates are considered for this action. The individual permit cap reduces annually with the active trap cap for each year of trap cuts. An entity with a cumulative allocation that is less than the aggregate ownership cap at the time of the control date, may purchase additional traps that correspond to the individual permit caps for the existing permits, but may not exceed the aggregate ownership cap. In other words, an entity may buy more traps for each permit but may not

buy any additional permits and is restricted to the cumulative ownership cap associated with the number of permits in hand as of the control date. Those with more than 5 permits (in excess of the aggregate ownership cap) at the time of the control date can buy up to the individual permit cap for each permit.

Table 3. Schedule of Annual Trap Caps for Area 3 as set forth in Addendum XXII

Trap Reduction Year	ISFMP Active Trap Cap	Individual Permit Cap	Aggregate Ownership Cap
Year 0	2,000	2,333	11,665
Year 1	1,900	2,216	11,080
Year 2	1,805	2,105	10,525
Year 3	1,715	2,000	10,000
Year 4	1,629	1,900	9,500
Year 5	1,548	1,800	9,000

4.4.5 Banking: An Outdated Concept

Banking is a component of the Commission's Plan for Areas 2 and 3 that is no longer ripe for implementation. The banking of traps was intended to be a tool for fishermen to obtain additional allocation in excess of the active trap cap in advance of the annual trap reductions to avoid annual quests for allocation to mitigate the trap cuts. In Area 2, it was also intended as a means to reduce latent effort by "zeroing out" any residual banked allocation at the end of the two-year sunset on banking. With the trap reduction schedule being complete, the concept of banking traps is now moot and implementing it would provide no benefit to Area 2 fishermen in responding to trap reductions. And because the entire Area 3 trap reduction will have been completed by the time this rule is in place, none of the Area 3 alternatives considered in this analysis include banking, although one alternative does consider aggregate allocations of traps at levels that banking would have allowed, as set forth on Addendum XXII.

We initially considered including banking in the Area 2 Commission's Alternative to allow for one year of banking in advance of that last annual reduction. Upon further consideration, it became clear that a single year of banking would not provide any benefit to Federal lobster permit holders because they could more easily acquire the necessary allocation from a second permit with an Area 2 allocation or from another Federal permit holder wishing to sell Area 2 allocation. All of this can be done in a single step, whereas banking would require two steps: Acquisition of allocation from another permit; and then the banking of the allocation. Neither option would excuse the buyer from the conservation tax on the allocation purchase. Another benefit of banking – the liquidation of residual banked allocation after the two-year sunset to reduce latent effort – would not be effective because permit holders seeking to mitigate a single year of trap reductions would, presumably, purchase only the number of traps they need to maintain their pre-reduction allocation. Therefore, the likelihood of any substantial residual allocation after the sunset is low, limiting the potential benefit of reducing latent traps. Consequently, banking at this stage would not provide any useful benefit to permit holders beyond what a two-party trap transfer transaction would. In addition, allowing banking for a single year would require substantive renovations to the regional permit databases that may not be worthwhile because of the limited benefit to permit holders and the additional level of complexity to the tracking and reconciliation of Federal permit histories.

4.5 Harvester Reporting and Addendum XXVI to Amendment 3 to the Interstate Fishery Management Plan for American Lobster

4.5.1 Reporting Background

With the exception of limited access Federal lobster permits, mandatory harvester reporting for limited access Federal fishery permits was implemented in NMFS' Greater Atlantic Region in 1994. This required affected permit holders to submit trip-level harvester reports on a monthly basis on a paper form called the Federal vessel trip report (VTR). Since that time, some fisheries have advanced the submission schedule to weekly, to adequately monitor fishery quotas. Federal American lobster permits were not included in this inaugural reporting requirement due, in part, to concern that the high volume of forms generated daily by thousands of commercial lobstermen could overwhelm the Regional Office's capacity to effectively process the information, in addition to the time and cost burdens on lobster fishermen. These requirements have remained relatively unchanged since their initial inception.

4.5.2 The Lobster Plan's Reporting and Biological Data Collection Requirements

The Commission has adopted several addenda to govern harvester reporting and monitoring requirements. After Amendment 3 was adopted, the LCMTs submitted area-specific management plans under the framework of Amendment 3. After approval by the TC, these plans were adopted as the effort control component of the plan, as Addendum I to Amendment 3 in 1999. Addendum I also adopted fishery monitoring and reporting standards for the states, including a commercial catch and effort data collection program, which recommended baseline trip-level reporting data elements for harvesters. Additionally, it included collections standards for biological data on the fishery for sea sampling and at-sea observer coverage.

Addendum VIII, adopted by the Commission in May 2006, refined the elements for fishery monitoring and reporting. The addendum explained that inconsistent spatial and temporal data continued to hamper the effective assessment of the stock and management of the fishery. The addendum called for standardized mandatory reporting of landings data on a coastwide basis to improve lobster stock assessments. Addendum VIII adopted guidelines for fishery dependent data from harvesters, sea sampling, and port sampling. Notably, it required each state to collect trip-level catch and effort data for at least 10 percent of its fishermen, or a statistically valid alternative.

In February 2007, the Commission acted yet again to improve fishery dependent data in the lobster fishery when it adopted Addendum X. Citing insufficient fishery dependent data as an impediment to effective management, the new addendum was an additional push for a consistent coastwide monitoring and reporting program to better inform science and management decisions. While the changes in Addendum VII helped to improve overall lobster data collection, they did not meet the ACCSP data standard or all the recommendations for program improvements from the 2005 stock assessment peer review (ASMFC 2007).

Addendum X again cited the importance of fishery dependent data such as landings, sea sampling, and port sampling in lobster management. Hence, Addendum X called for 100 percent dealer reporting and 10 percent active harvester reporting, with the expectation of 100 percent of harvesters reporting in the future. This expanded requirement was expected to enhance fishery assessments by improving data quality and increasing the consistency of spatial and temporal data collection on a coastwide basis. The addendum also called for a two-ticket collection system so that reported landings by harvesters and dealers could be used to verify one another. It also set the timing for the receipt of reports into the ACCSP system by the 10th of the following month. Addendum X also included specific biological and

fishing effort data elements for collection, along with the biological characteristics in the port sampling program to assist in characterization of commercial landings. Additionally, Addendum X required all statistical areas be sampled by either an annual trawl survey, ventless trap survey, or young-of-the-year survey to augment collection of fishery independent data.

Addendum X prompted NMFS to require all Federal lobster dealers to submit weekly electronic reports (74 FR 37530; July 29 2009). The reports provide trip-level landings information for all the purchases that a Federal lobster dealer made over the previous week. All Federal lobster harvesters must sell their catch to a licensed Federal lobster dealer, so despite the lack of trip level reporting from all harvesters, the mandatory dealer-reporting requirement has helped to capture all Federal lobster landings information through a single reporting platform. While dealer reporting does capture comprehensive trip level data, it does not include information on where the lobsters were harvested, the number of traps, soak time, or other important spatial data needed for assessments and management decisions.

The lack of a geographically representative application of the trip-level reporting requirement for lobster permit holders over the past few decades has limited the utility of the data for stock assessments and management actions. This deficiency has prompted continued recommendations from the Commission, scientists, and even the lobster industry, for expanded collection of fishery-dependent data elements and improved spatial data on the fishery.

4.5.3 Addendum XXVI

The Commission adopted Addendum XXVI in February 2018, which aimed at improving harvester reporting and biological data collection in state in federal waters by improving the spatial resolution and quality of the data collected. The intent of the addendum is to improve the spatial resolution of harvester data, improve and expand the collection of fishery effort data, and to obtain better data on the offshore fishery and lobster stock through improved biological sampling. The Commission expects the data expansion to improve lobster stock assessments, lobster enforcement, and assessment of impacts to the fishing industry from wind power projects and marine protected areas. Further, the improved spatial data on the fishery will inform measures to reduce the threat of serious injury and mortality to large whales due to entanglement in fishing gear.

The addendum requires all states to implement a mandatory trip-level harvester reporting requirement with expanded data elements to improve spatial fishery data. It allows a five-year compliance period for the State of Maine, which currently only requires 10 percent of state licensees to report their catch, to allow more time to develop electronic reporting technology as a means of reducing the cost and time burdens to the industry and state agency in expanding the reporting requirement out to all 5,000 plus Maine state lobster licensees. More specifically, it recommends that NMFS implement a mandatory reporting requirement as soon as possible, and develop and utilize a specialized fixed-gear reporting form that includes data fields for improved spatial fishery data and fishing effort information. It also provides specific recommendations for expanded sea sampling and biological sampling requirements. We published an advance notice of proposed rulemaking in 2018 to inform the public that it was considering implementing a mandatory harvester reporting requirement and analyzing it within this action. We also intend to consider the expanded data elements in this action. Specifically, Addendum XXVI recommended 5 additional data elements that are not specifically collected in the Federal VTR. Further, following substantial work by state and Federal partners in 2020 to align data collection requirements (in response to Addendum XXVI), the Commission recommended the collection of 3 additional data elements in a March 8, 2021 letter.

Addendum XXVI is also Addendum II to the Commission's Interstate Fishery Management Plan for Jonah Crab as the Commission considers the lobster and Jonah crab fisheries as a mixed crustacean fishery and, therefore, has adopted the same data collection and reporting standards for both species.

4.5.4 Move toward Electronic Reporting

Improvements in technology now provide permit holders with multiple electronic formats to choose from to submit their reports. Electronic reporting options save on the time and cost for both submitting the information at the industry end, and processing and analyzing the information on the agency end. Additionally, electronic reporting has facilitated the inclusion of Federal harvester data into the cooperative state/Federal data system managed by the Atlantic Coastal Cooperative Statistics Program known as SAFIS. This data is used by the states and NMFS for fishery monitoring, stock assessment, and other science and management needs.

In early 2020, the New England and Mid-Atlantic Fishery Management Councils approved a joint action requiring vessels holding permits under their management authority to submit mandatory electronic vessel trip reports. In addition, this action advances the submission requirement for all Federal fisheries under Council jurisdiction to 48 hours after the conclusion of a trip. We implemented this requirement for all limited access commercial fisheries managed by the Councils on November 10, 2021, which eliminated the option to submit VTRs using a paper form. This action comes on the heels of the successful implementation of electronic VTRs for the mid-Atlantic for-hire fleet. This trend, and the recommendations of the Commission and others to expand harvester reporting to the lobster fleet, have prompted us to consider implementation of trip-level harvester reporting for all Federal lobster permits.

4.6 Purpose and Need for this Action

This EA is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This action was initiated in 2017 and the agency has decided to proceed under the 1978 regulations.

The Atlantic Coastal Fisheries Cooperative Management Act (16 U.S.C. 5101 *et seq.*) directs the Federal government to support the management efforts of the Commission and, to the extent the Federal government seeks to regulate a Commission species, develop regulations that are compatible with the Commission's Interstate Fishery Management Plan and consistent with the Magnuson-Stevens Fishery Conservation and Management Act's National Standards. As such, the purpose of this action is to complement measures outlined in Addenda XXI, XXII, and XXVI to Amendment 3 to the Interstate Fishery Management Plan for American Lobster. This action is needed to scale the SNE lobster fishery to the diminished size of the SNE resource by implementing changes to trap allocations and the trap transfer program, address the poor condition of the SNE lobster stock, and collect improved fishery-dependent through expanded harvester reporting.

Figure 4. Purpose and Need for this Action.

Need for this Action	Addendum	Corresponding Purpose for this Action
To complement the Commission Lobster Plan	Addenda XXI and XXII	• scale the SNE lobster fishery to the diminished size of the SNE resource by implementing changes to trap allocations and the trap transfer program • address the poor condition of the SNE lobster stock
	Addendum XXVI	• collect improved fishery-dependent through expanded harvester reporting and additional data elements

4.7 Action Timing

As discussed above, the Lobster Board approved Addendum XXI and XXII in 2013. At that time, we were accepting public comments on a proposed rule for the Area 2 and Outer Cape qualification and the Trap Transfer Program. At the Board's August 2013 meeting, NMFS explained that, because the transferability rule was already in progress, any adjustments made through Addendum XXI could not be included as part of the initial Trap Transfer Program, and any new measures would need to be evaluated and implemented in separate, subsequent rulemaking action.

In response to the Commission's adoption of Addenda XXI and XXII, NMFS issued an advance notice of proposed rulemaking (ANPR) (79 FR 4319; January 27, 2014) to promote awareness of a possible future rulemaking that could limit the number of permits or traps a business entity may own in Area 2 and 3, or in any of the Areas, alert interested parties of potential eligibility criteria for future access, and discourage speculative entry into and/or investment in the American lobster fishery while the Commission and NMFS consider if and how participation in the American lobster fishery should be controlled. The ANPR alerted the public that its publication date, January 27, 2014, could be used as a control date for establishing a cap on permits and traps.

Following the release of the 2015 stock assessment, the Lobster Board initiated draft Addendum XXV to continue to address the increasingly poor condition of the SNE stock. On July 21, 2016, NMFS notified the Commission that it was imprudent for us to publish a proposed rule for Federal trap cap and banking measures recommended within the context of the previous stock assessment when the Commission was embarking on a new effort to respond to the poor condition of the SNE stock, through Addendum XXV. Our letter informed the Commission that we suspended our Addenda XXI and XXII rulemaking efforts until we have a better understanding of our collective response to the SNE stock assessment.

The Board approved draft Addendum XXV for public comment in February 2017, which considered potentially drastic restrictions on the SNE fishery. NMFS decided to delay rulemaking on Addenda XXI and XXII as some of the Addendum XXV provisions would have rendered those in the previous addenda obsolete. After more than a year of debate and development, the Commission ultimately decided to take no further action on Addendum XXV, so NMFS published another ANPR (82 FR 52871, November 15, 2017) on November 15, 2017, revisiting the issues put forth in the January 27, 2014 ANPR. In response to the Board approving Addendum XXVI, NMFS published another ANPR on June 14, 2018, (83 FR 27747, June 14, 2018) to consider 100 percent harvester reporting in this rulemaking.

5.0 Description of Management Alternatives

In consideration of the Commission's recommendations for Federal action, this EA will evaluate several alternatives in addition to the Commission's recommendations, including different management options for each of Areas 2 and 3, and mandatory harvester reporting coastwide. As explained in Section 4.4.5, some elements in Addenda XXI and XXII, such as trap banking, are no longer ripe for implementation or analysis because the trap reductions have already taken place. The EA analyzes a no action alternative and two additional alternatives for each management area, with consideration of multiple control dates and implementation timelines for Area 3 allocations.

5.1 Area 2 Alternatives

5.1.1 No Action

This alternative considers the impacts of not implementing the single ownership trap cap from Addendum XXI. If the No Action Alternative is chosen, then Federal permit holders would not be able to acquire

more than the active fishable allocation for each Area 2 permit, which is 800 traps, but they could continue to own an unlimited number of Federal lobster permits with an Area 2 trap allocation. Under this scenario, the series of annual Area 2 trap reductions and the Trap Transfer Program would remain in place, but Federal lobster permit holders would be able to accrue no more than the fishable active trap cap for Area 2. In other words, participants would not be able to bank traps in excess of the fishable limit and draw them down as the annual trap reductions become effective. Permit holders intending to recoup trap allocation lost during the annual trap reductions would have to purchase allocation from another Area 2 permit during the annual trap transfer period and such transfers would remain subject to the 10-percent conservation tax. With the No Action Alternative, the Sunset Provision (Section 3.2.3) would be moot, meaning that there would be no need to end the practice of trap banking two years after the last trap reductions take place because banking would not exist under this alternative. There would not be an aggregate ownership cap, meaning that a permit holder could continue to have an unlimited number of Federal lobster permits and each of those permits could acquire up to the fishable allocation of 800 Area 2 traps. We will use it as the basis for comparing the impacts of all other management measures.

5.1.2 Modified Commission Area 2 Alternative (Preferred)

This alternative considers elements of the Commission's Addendum XXI, within the current context of the fishery, while aligning more closely with the current and ongoing situation in Area 2. Despite excluding banking, this Modified Commission's Alternative makes an effort to realize another important outcome of Addendum XXI; restricting most Area 2 fishermen to 800 active Area 2 traps at the end of a two-year adjustment period.

The provisions of Addendum XXI allow a two-year sunset clause, whereby all banked allocation is eliminated, effectively reverting all entities to owner/operators. With banking no longer a feasible element of the Area 2 plan, the sunset clause will not act to eliminate residual allocation, but here we consider its implementation as a means of offering another tool for adjusting allocations prior to finalizing the active ownership cap. This alternative would cap most entities at 800 active traps approximately two years after publication of this action (i.e., May 1, 2024). This option would further restrict the fishery by establishing a *de facto* owner-operator fishery because Federal permit holders who may currently hold an unrestricted number of Area 2 traps, limited by the number of permits that are held, would be restricted to only 800 traps.

While one intention of Addendum XXI was to prevent any single entity from acquiring a substantial market share in the Area 2 trap fishery, the addendum also included a recommendation to allow entities with permits and traps in excess of this limit to retain those permits and traps, but may not own or share ownership of any additional permits or traps. Several years have passed since the Commission recommended these measures and allowing these entities to maintain their current allocation reflects the business decisions that industry participants have made since the addendum was passed and the Trap Transfer Program was implemented.

If this alternative is selected, permit holders would be allowed to continue with their allocations in excess of 800 traps but would be capped at that trap level. All other Area 2 permit holders would be able to use transferability to adjust their future allocations to maximize business operations.

5.1.3 1,600 Trap Alternative

This alternative modifies the Area 2 program in Addendum XXI to align with different aspects of the addendum. Addendum XXI aimed to prevent any single entity from acquiring a substantial market share in the Area 2 trap fishery. This alternative incorporates the Commission's desire to limit the accumulation of permits while also respecting other management tools already in place for Area 2,

namely the trap transfer program. The alternative would implement the aggregate ownership cap in Area 2, restricting each entity to 1,600 lobster traps, incorporating the Addendum's single ownership cap WITHOUT implementing the sunset provision.

The trap transfer program has changed business practices in the Area 2 fishery, where some permit holders have purchased additional permits. With the 6-year trap reductions, these permits have effectively operated as a permit bank, allowing a permit holder to transfer permits to their active vessel to mitigate the effect of the reductions. Because of the trap transfer program, the number of permits owned by an entity is practically irrelevant. Instead, this alternative hones in on the trap allocations of an entity's permits, and caps entities to no more than 1,600 traps.

Those entities below 800 traps could be built up to 1,600 through transferability as long as the aggregate allocation of an entity remains at or below 1,600 traps. If an entity held more than 1,600 traps, the difference would be forfeited. Permit holders would still be able to sell their allocations and/or adjust their allocations annually through the trap transfer process. Permits may be transferred to other entities through the normal process, but no permit holder could exceed the single ownership cap of 1,600 traps.

This alternative would not execute the sunset clause two years after the last round of annual trap reductions, nor would it allow entities with permits and traps in excess of this limit to retain those permits and traps. This alternative provides a two-year window for allocation adjustments through transfers. Permit holders who obtained permits after the proposed rule publishes will have two years to adjust their allocations so that no single entity has more than 1,600 traps in aggregate, anticipated May 1, 2024. We would work with any permit holders and the relevant states to remove excess trap allocation from entities who have more than 1,600 Area 2 traps ahead of May 1, 2024.

5.2 Area 3 Alternatives

5.2.1 No Action

With this alternative, we would not implement the individual permit cap and aggregate ownership cap provisions adopted in Addenda XXI and XXII. Federal lobster permit holders in Area 3 could continue to acquire an unlimited number of Federal lobster permits with Area 3 trap allocations. Under this alternative, any entity may own an unlimited number of Federal lobster permits with Area 3 trap allocations, with each permit allowed to acquire up to the 1,945-trap active trap limit currently in place. The rules of the annual Trap Transfer Program would remain unchanged. Permit holders would maintain the opportunity to transfer Area 3 trap allocation with any other Federal lobster permit holder and this could be done in the summer prior to the next annual trap reduction, becoming effective at the start of the following fishing year. With the five-year trap reduction schedule complete, transferability may continue as an opportunity to modify allocations. This alternative would not implement the series of reductions for the active, individual, or aggregate trap caps. This alternative assesses the impacts of maintaining the current management program of trap transferability and annual trap reductions through 2020. It serves as the baseline for assessment of impacts to the affected environment of all other alternatives.

5.2.2 Adjusted Ownership Cap Alternative (Preferred)

The Adjusted Ownership Cap Alternative would adopt the Area 3 active trap cap and aggregate ownership caps and associated reductions, as outlined in Addenda XXI and XXII and shown in Table 4. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered as part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. Without banking and a system for differentiating between active and banked

allocation, these higher allocations reflected in the individual permit caps would represent the potential for increasing the active allocation of each permit. This is contrary to the Commission's intent in the addendum.

Table 4. Summary of Modified Active and Aggregate Trap Caps for Area 3

Trap Reduction Year	Active Trap Cap	Individual Permit Cap	Aggregate Ownership Cap*
Year 0	2,000	N/A	10,000
Year 1	1,900	N/A	9,500
Year 2	1,805	N/A	9,025
Year 3	1,715	N/A	8,575
Year 4	1,629	N/A	8,145
Year 5	1,548	N/A	7,740

*The aggregate ownership cap in this alternatives equals five times the active trap cap

The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap. In comparison, Addendum XXII's aggregate ownership caps are five times the individual permit cap, or banked cap. This Adjusted Ownership Cap Alternative reduces the annual aggregate caps from those in Addendum XXII but achieves a similar result, given that under either scenario the active number of traps fished for each active permit are the same. The major difference with this alternative is that permit holders would be limited by lower aggregate trap caps based on the active trap cap. As with the other Area 3 alternatives, this alternative would apply to those permit holders with allocations that exceed the aggregate trap limits and considers the impacts based on multiple control dates.

This alternative has three sub-alternatives for applying varying control dates to the fishery, which sets the foundation for trap allocations and future reductions. As discussed in greater detail in Section 4.7, we issued two control dates for the fishery that could be used for establishing a cap on permits and traps. The baseline allocations would depend on the qualifying year set by the control date that is selected (2014 or 2017, or using May 1, 2019 as a proxy for current allocations), as discussed in greater detail below. Each control date sub-alternatives have three additional sub-alternatives for the timing of the allocation cap reductions as shown in the table below:

Table 5. Adjusted Trap and Permit Cap Reduction Schedule without Individual Permit Cap if the Adjusted Ownership Cap Alternative is Chosen.

Year	Addendum XXII Timeline (FY)	Active Trap Cap	Individual Permit Cap	Aggregate Permit Cap (5X ATC)	One-Year Trap Reduction Timeline (FY)	Three-Year Trap Reduction Timeline (FY)	Five-Year Trap Reduction Timeline (FY)
0	2015	2,000	N/A	10,000	N/A	N/A	N/A
1	2016	1,900	N/A	9,500	N/A	N/A	**2023**
2	2017	1,805	N/A	9,025	N/A	**2023**	**2024**
3	2018	1,715	N/A	8,575	N/A	N/A	**2025**
4	2019	1,629	N/A	8,145	N/A	**2024**	**2026**
5	2020	1,548	N/A	7,740	**2023**	**2025**	**2027**

Permit holders with allocations less than the aggregate permit cap would be allowed to build up to those caps. Permit holders with allocations that exceed the aggregate permit caps would be capped at their allocations as of the various control dates. We will make additional selections from the control date and

cap reduction timeline sub-alternatives below to implement the aggregate trap caps and active trap cap reductions.

5.2.2.1 2014 Control Date Approach

We published a relevant control date in January 2014. For a permit holder with an allocation less than the aggregate limit, we would use their 2019 allocation. For any permit holder that exceeds the aggregate caps, this alternative would consider trap allocations and future reductions in the context of permit and trap allocations as of January 2014. Thus, we would apply the active trap cap reductions to each permit's 2014 allocation. Thus, it would discount any business decisions made by those Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2014. These permit holders who exceed the aggregate cap would be capped at their 2014 trap level and be prevented from acquiring additional permits. This approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.2.1.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 5, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.2.1.2 Three-Year Allocation Cap Reduction

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 5. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.2.1.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 5. The first year of trap reductions would begin on May 1, 2023, and the reductions would conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.2.2.2 2017 Control Date Approach

We published a relevant control date in November 2017. For a permit holder with an allocation less than the aggregate limit, we would use their 2019 allocation. For any permit holder that exceeds the aggregate caps, this alternative would consider trap allocations and future reductions in the context of permit and trap allocations as of November 2017. Thus, we would apply the active trap cap reductions to each permit's 2017 allocation. Thus, it would discount any business decisions made by those Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2017. These permit holders who exceed the aggregate cap would be capped at their 2017 trap level and be prevented from acquiring additional permits. This approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.2.2.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 5, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.2.2.2 Three-Year Allocation Cap Reduction

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 5. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.2.2.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 5. The first year of trap reductions would begin on May 1, 2023, and conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.2.2.3 Current Permit Data (as of May 1, 2019) Approach (Preferred)

For all permit holders, we will analyze the impacts associated with current permit allocations (as of May 1, 2019) as a proxy for the values at the time of implementation. This alternative would fully consider the business decisions made by Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2014. It would allow cap permit holders with allocations that exceed the aggregate limit at 2019 level and prevent them from acquiring additional permits or traps. Consistent with the control date approaches, this approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.2.3.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 5, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.2.3.2 Three-Year Allocation Cap Reduction (Preferred)

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 5. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.2.3.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 5. The first year of trap reductions would begin on May 1,

2023, and the reductions would conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.2.3 Modified Commission Area 3 Alternative

The Modified Commission's Area 3 Alternative is similar to the Adjusted Ownership Cap Alternative in that it eliminates the individual permit cap. The individual permit cap is moot because banking is no longer an option. This alternative differs from the Adjusted Ownership Cap because it maintains the aggregate ownership caps recommended in Addendum XXII, which are five times the individual permit cap. The rationale here is to provide an alternative that would capture the aggregate caps consistent with the recommendations in the addendum, to allow for consideration of business decisions that may have been based on those recommendations.

Qualified entities in excess of the aggregate cap at the outset could retain those permits and traps but could not purchase additional permits or allocation, but they could transfer allocation to other permits that have Area 3 allocation, up to the active trap cap. Entities with less than the aggregate cap could build up their aggregate allocations but may not exceed the aggregate cap.

Federal lobster permit holders' active and aggregate allocations would be capped at the levels shown in Table 6. The baselines would depend on the qualifying year set by the control date that is selected (sub-alternatives below). The aggregate allocations equal five times the individual (banked) cap for a single permit. We will consider these allocations even in the absence of banking because of their origin in the Commission's recommendations for Federal action. In this case, however, if we selected this alternative, the aggregate allocations would represent active traps, not the residual banked amount that was intended in Addendum XXII. Therefore, these aggregate allocations would represent a higher number of potential active traps that an entity could hold compared to Addendum XXII. We consider this because some Area 3 entities may have made business decisions to acquire trap allocation based on these caps that were part of the Commission's Plan.

Table 6. Summary of Annual Trap and Permit Caps for Area 3 from Addendum XXII

Trap Reduction Year	Active Trap Cap	Individual Permit Cap	Aggregate Ownership Cap*
Year 0	2,000	N/A	11,665
Year 1	1,900	N/A	11,080
Year 2	1,805	N/A	10,525
Year 3	1,715	N/A	10,000
Year 4	1,629	N/A	9,500
Year 5	1,548	N/A	9,000

*The aggregate ownership cap in this alternatives equals five times the individual permit cap, as recommended in Addendum XXII. The individual permit cap is not being considered in this action.

This alternative differs from the Commission's recommendation because it would not allow banking and, therefore, does not include the individual ownership caps. It recognizes the aggregate permit caps as set forth in Addendum XXII. As there is no banking option, these aggregate trap levels would represent a higher number of potentially active traps. The intent of this alternative is to acknowledge the Commission's recommended aggregate allocations considering some permit holders may have made business decisions based on these aggregate allocations.

This alternative has three sub-alternatives for applying varying control dates to the fishery, which sets the foundation for trap allocations and future reductions. As discussed in greater detail in Section 4.7, we

issued two control dates for the fishery that could be used for establishing a cap on permits and traps. The baseline allocations would depend on the qualifying year set by the control date that is selected (2014 or 2017, or using May 1, 2019 as a proxy for current allocations), as discussed in greater detail below. Each control date sub-alternatives have three additional sub-alternatives for the timing of the allocation cap reductions as shown in the table below:

Table 7. Addendum XXII Trap and Permit Caps and Annual Reduction Schedule if the Modified Commission Area 3 Alternative is Chosen.

Year	Addendum XXII Timeline (FY)	Active Trap Cap	Individual Permit Cap	Aggregate Permit Cap (5X IPC)	One-Year Reduction Timeline (FY)	Three-Year Reduction Timeline (FY)	Five-Year Reduction Timeline (FY)
0	2015	2,000	N/A	11,665	N/A	N/A	N/A
1	2016	1,900	N/A	11,080	N/A	N/A	**2023**
2	2017	1,805	N/A	10,525	N/A	**2023**	**2024**
3	2018	1,715	N/A	10,000	N/A	N/A	**2025**
4	2019	1,629	N/A	9,500	N/A	**2024**	**2026**
5	2020	1,548	N/A	9,000	**2023**	**2025**	**2027**

We will make additional selections from the control date and cap reduction timeline sub-alternatives below to implement the aggregate trap caps and active trap cap reductions.

5.2.3.1 2014 Control Date Approach

We published a relevant control date in January 2014. For a permit holder with an allocation less than the aggregate limit, we would use their 2019 allocation. For any permit holder that exceeds the aggregate caps, this alternative would consider trap allocations and future reductions in the context of permit and trap allocations as of January 2014. Thus, we would apply the active trap cap reductions to each permit's 2014 allocation. Thus, it would discount any business decisions made by those Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2014. These permit holders who exceed the aggregate cap would be capped at their 2014 trap level and be prevented from acquiring additional permits. This approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.3.1.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 7, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.3.1.2 Three-Year Allocation Cap Reduction

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 7. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.3.1.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 7. The first year of trap reductions would begin on May 1, 2023, and the reductions would conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.2.3.2 2017 Control Date Approach

We published a relevant control date in November 2017. For a permit holder with an allocation less than the aggregate limit, we would use their 2019 allocation. For any permit holder that exceeds the aggregate caps, this alternative would consider trap allocations and future reductions in the context of permit and trap allocations as of November 2017. Thus, we would apply the active trap cap reductions to each permit's 2017 allocation. Thus, it would discount any business decisions made by those Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2017. These permit holders who exceed the aggregate cap would be capped at their 2017 trap level and be prevented from acquiring additional permits. This approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.3.2.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 7, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.2.2.2 Three-Year Allocation Cap Reduction

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 7. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.2.2.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 7. The first year of trap reductions would begin on May 1, 2023, and the reductions would conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.2.3.3 Current Permit Data (as of May 1, 2019)

For all permit holders, ee will analyze the impacts associated with current permit allocations (as of May 1, 2019) as a proxy for the values at the time of implementation. This alternative would fully consider the business decisions made by Area 3 permit holders in consideration of the suite of recent trap reductions and allowance for trap transferability since 2014. It would allow cap permit holders with allocations that exceed the aggregate limit at 2019 level and prevent them from acquiring additional permits or traps.

Consistent with the control date approaches, this approach contains three sub-alternatives for implemented the active trap cap and aggregate ownership cap reductions.

5.2.3.1.1 One-Year Allocation Cap Reduction

With this sub-alternative, we would reduce all allocations to the Year 5 trap and permit caps listed in Table 7, beginning on May 1, 2023. This approach would allow permit holders time during the summer 2021 trap transfer period to make any necessary adjustments through purchase and sale of trap allocation prior to the reductions. This option is the most consistent with the timing set forth in Addendum XXII, achieving all the reductions by 2023. This is the most restrictive timing sub-alternative because it would require each Area 3 entity to reduce their allocations to the lowest level of the caps all in one year.

5.2.3.1.2 Three-Year Allocation Cap Reduction

This alternative would implement the Addendum XXII trap and permit cap reductions using an accelerated schedule over a three-year period, as listed in Table 7. Effective May 1, 2023, the Year 2 reductions would be completed. The following year, beginning May 1, 2024, the Year 4 trap caps would take effect. Finally, on May 1, 2025, the final Year 5 trap caps would be achieved.

5.2.3.1.3 Five-Year Allocation Cap Reduction

This sub-alternative would implement the Addendum XXII trap and permit cap reductions using the recommended 5-year period, as listed in Table 7. The first year of trap reductions would begin on May 1, 2023, and the reductions would conclude May 1, 2027. This would be the least restrictive of all the timing sub-alternatives, with small reductions each year, allowing Area 3 entities more time to adjust the overall cap reductions.

5.3 Reporting

In accordance with the Commission's approval of Addendum XXVI, this action will consider two alternatives for mandatory trip-level reporting for all Federal lobster permit holders and the no action.

5.3.1 No Action

In this alternative, we would not change any of the current reporting requirements for Federal lobster permit holders. We will continue to require trip-level harvester reporting only for those Federal lobster permit holders who also hold another limited access federal fisheries permit that requires the completion of a VTR. Those with state licenses would be held to any state reporting requirements that may apply to them. Data gaps would remain to the detriment to fishery dependent spatial data collection and fishing effort data.

5.3.2 Electronic Trip Level Reporting (Preferred)

This preferred alternative would require all Federal lobster permit holders to submit a trip-level harvester report, using the Federal VTR, electronically no more than 48 hours following the completion of a trip. In addition, this action considers the expanded reporting elements recommended in Addendum XXVI, including Lobster Conservation Management Area, 10-minute square, trip length, total number of traps hauled by chart area, total number of traps in the water in chart area fished, average number of traps per string hauled in a chart area fished, total number of buoy lines in a chart area fished, and total number of buoy lines in the water. This alternative would eliminate the geographic gap in reporting coverage, provide more reliable harvest and effort data, and would provide additional data on trap effort and location to better inform interactions between lobster trap gear and large whales as well as impacts to the industry from marine power and conservation proposals (e.g. marine protected areas, seasonal fishery and

whale-related closures). All permit holders will be encouraged to use one of the many readily available reporting platforms for electronic submission and will be provided detailed information on how to report.

5.3.3 Trip Level Reporting with Paper Form

This alternative is the same as the preferred alternative in that it would require all Federal lobster vessels to submit a VTR for every fishing trip. This option, however, would allow for submission using a paper form.

5.4 Considered but Rejected

5.4.1 Addendum XXVI Offshore Sampling Program

Addenda XXVI recommends that we implement a targeted lobster sampling program in Federal waters to more sufficiently characterize commercial catch and biological conditions of the offshore lobster stock. Addendum XXVI provides an outline of the sampling program based on recommendations by the Lobster Technical Committee to provide this additional information to facilitate more accurate stock assessments due to an expansion of the lobster fishery into Federal waters. The outline suggests a random-stratified sea sampling program for the offshore lobster fishery with a sampling universe that includes all Federally-permitted lobster vessels, with at least three samples (we assume a sample to be a fishing trip) from each statistical area per quarter per year. The addendum provides specific statistical areas as sampling targets to fill in data gaps in the current sampling frame. We have considered but rejected adopting these new requirements because doing so would not be possible under the current time-frame for this rule, which is intended to expand harvester reporting to the entire Federal lobster fleet as soon as practicable. Such an endeavor must be considered within the context of the Northeast Fisheries Observer Program budget and priorities and would need to be done through coordination with the Northeast Fisheries Science Center and may potentially require consultation with the relevant Fishery Management Councils, and therefore are considered but rejected.

5.4.2 Revised Gear Marking Requirements in the Gulf of Maine

In recent years, the coastal lobster fishery in the Gulf of Maine has expanded farther offshore. Historically, high levels of lobster abundance have yielded strong catches and value in the fishery. This has fostered an offshore shift in the fishery. Federal lobster regulations on surface gear marking requirements take effect in the Gulf of Maine from 12 nm from shore, with little offshore enforcement presence. Shoreward of that line, Federally permitted lobster fishermen are subject to state marking requirements. The regulatory language governing surface gear marking requirements are codified at 50 CFR 697.21(b)(2) and can be interpreted as follows:

- Lobster trap trawls of three of fewer traps deployed in the EEZ must be attached to and marked with a single buoy.
- Lobster trap trawls consisting of more than three traps must have a radar reflector and a single flag or pennant on the westernmost end (marking the half compass circle from magnetic south through west, to and including north), while the easternmost end (meaning the half compass circle from magnetic north through east, to and including south) of an American lobster trap trawl must be configured with a radar reflector only. Standard tetrahedral corner radar reflectors of at least 8 inches (20.32 cm) (both in height and width, and made from metal) must be employed.

These requirements have been misinterpreted by some permit holders and have led to confusion and suboptimal attempts at compliance. We have considered the recommendations from some members of the fishing industry and the Maine Marine Patrol to clarify these regulations for lobster trap gear seaward of 12 nm. Although we generally agree that some revisions to the regulations may facilitate compliance

and reduce gear conflicts, we have rejected them from further consideration as part of this action. Through a separate action, we are working with the Atlantic Large Whale Take Reduction Team, the fishing industry, and member states, to analyze and consider measures to reduce the entanglement risk to the endangered North Atlantic right whale. Measures under consideration include changes to gear marking requirements for the lobster industry and other approaches. Therefore, we have considered but rejected changing these gear marking regulations within the context of the lobster fishery to avoid undermining any future regulations that are promulgated under the Marine Mammal Protection Act to reduce the entanglement risk to North Atlantic right whales.

6.0 Affected Environment

Consistent with Section 1502.15 of the Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations (40 CFR Part 1500) pre-2020 regulations, this chapter describes key components of the environment affected by the effort control management alternatives for American lobster.

NMFS is proposing to adopt management measures for the American lobster fishery that aim to improve economic efficiency within the fishery, address concerns regarding the level of fishing effort in the commercial fishery, and improve information on landings and fishing effort through expanded harvester reporting requirements. This analysis attempts to identify potential adverse effects that overfishing has on biological resources that includes American lobster, protected species, by-catch species, and bait fish. This analysis takes a comprehensive look at the impacts of these management measures and the complex interactions between regulatory actions and the natural and human-based environmental implications of these management actions. All of these topics are discussed in turn below.

Five major Valued Ecosystem Components (VECs) are examined in detail:

- Section 6.1 describes the economic environment of the potentially affected population, as well as the social aspects of the fishing communities potentially affected by the proposed American lobster management measures.
- Section 6.2 describes the status of the American Lobster fishery, including its biological characteristics;
- Section 6.3 describes other potentially affected commercial fish species, including bycatch and bait fish species;
- Section 6.4 describes the physical environment that could be affected by the proposed action, including lobster habitats and essential fish habitats for federally-managed species; and
- Section 6.5 identifies protected species that may be affected by elements of the proposed American lobster management measures.

For purposes of this assessment, areas that may be directly or indirectly affected by the alternatives under evaluation include all of the Areas within the American lobster fishery, encompassing inshore coastal zone and offshore waters from Maine to North Carolina.

The resources evaluated include those species and habitats that may be directly or indirectly affected by the proposed management measures. In addition to American lobster, other biological resources evaluated for this document include protected species such as marine mammals, sea turtles, coastal and marine birds, fisheries resources, federally listed threatened or endangered species, benthic habitats used by lobsters, and essential fish habitats (EFH) for Federally-managed species that could be affected by this

action. Determining which habitats and species occur in the project area was accomplished through literature reviews and coordination with appropriate NMFS staff and other knowledgeable experts.

6.1 Human Communities/Social-Economic Environment

6.1.1. Overview

American lobster is one of the most valuable commercial fisheries in the United States,[11] with an annual estimated landings reaching near 136 million lb (62,000 mt) and an ex-vessel value of ~$556 million in 2017, down from a time-series high of 159 million lb (72,000 mt) valued at $667 million in 2016 (NMFS, 2017, Figure 5). The U.S. lobster resource occurs in continental shelf waters from Maine to North Carolina[12]. The majority of the U.S. lobster harvest comes from nearshore waters from 0-12 nm from shore. Overall U.S. landings have increased steadily since the 1970's when annual harvest was constant at about 31 million lb (14,000 mt). By 2006, landings had increased to 93 million lb (42,000 mt) and climbed to 150 million lb (68,000 mt) in both 2012 and 2013 (ASMFC, 2015). Since then, coastwide landings have continued to increase and despite a reduction in value and landings in 2017, continue to hover at record levels.

Despite this, available data (see discussion below) indicate that profit margins for lobster fishermen are declining: even while the value of American lobster at times may rise, the costs associated with lobster fishing are rising at a higher rate, and this has reduced the income of those who participate in the fishery. For purposes of this analysis, the economic environment for a lobster fisher can be seen as driven by both macro and micro incentives. At the macro level, a fisher is concerned with whether the regional value of the catch is high enough to want to take on the economic burdens associated with being an active participant in the fishery. At the micro level, a fisher must weigh the potential revenue from the catch against the substantial costs of operating within the fishery (including the risks associated with exposure to volatile regional economies, such as has been seen in recent years). In general, these costs include: The boat, bait, traps, rope, fuel, and overhead. Whether an individual can realize a sufficient profit margin after these costs and revenues have been factored will, for purposes of this analysis, suggest whether those fishermen currently participating in the lobster fishery will have incentives to continue to do so.

6.1.2 The Lobster Fishery Economics and Recent Trends

Lobster landings ranged from a low of 71.2 million lb (32,296 mt) in 2001 to a time series high of 159 million lb (72,000 mt) valued at $667 million in 2016, but have declined slightly to 136.7 million lb (62,006mt) in 2017 (Table 8). Despite landings that exceed those in 2001 by 50 percent, 2012 revenues only exceeded those in 2001 by 15 percent, because the 2012 price per pound had dropped by more than $2 over the time period (Table 8).

Figure 5. Total Coastwide and Federal American Lobster Landings and Revenue 2008-2017

[11] NMFS Office of Science and Technology, 2009.

[12] In addition to American lobster, the United States also has a spiny lobster fishery, which makes up a small percentage of the total U.S. landings. For purposes of this EA, however, it is assumed that total U.S. landings are composed exclusively of American lobster.

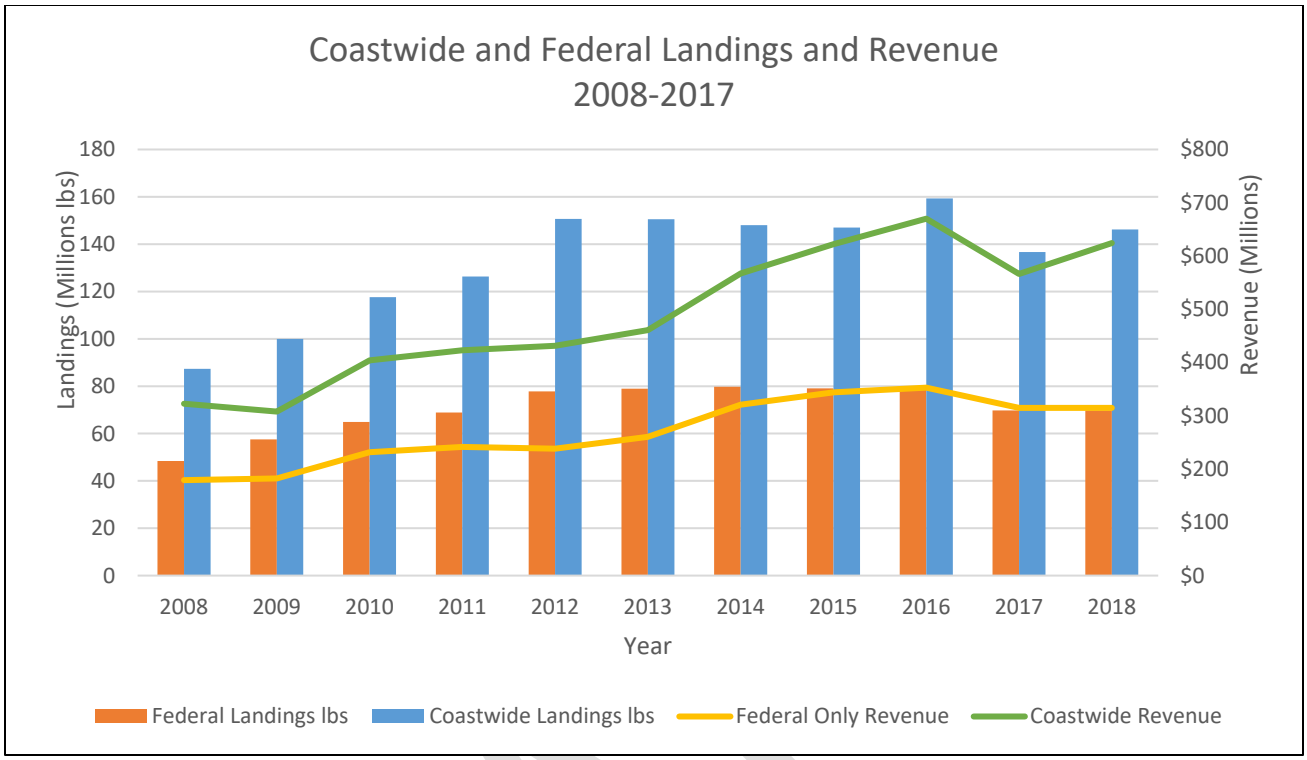
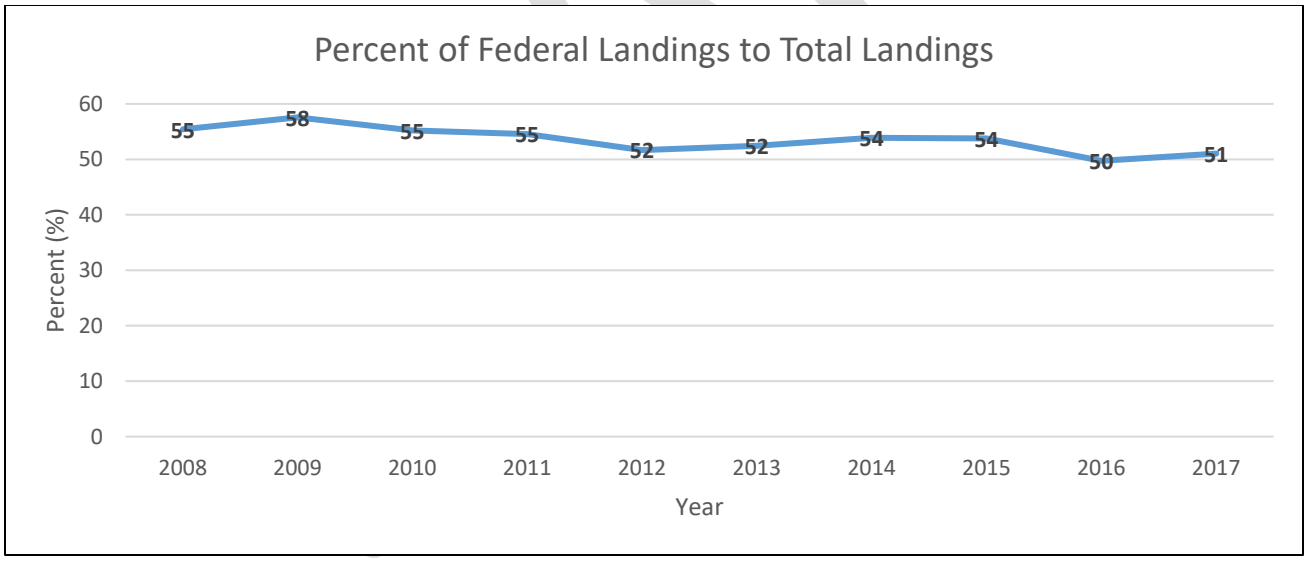


Figure 6. Percent of Federal Landings to Total Coastwide Landings 2008-2017



In 2016, American lobster topped the list of the highest value of all fisheries harvested nationwide (Fisheries of the US, 2016). This represents an increase of 12.6 million lb (5,715 mt) and $49.5 million compared to 2015. Combined landings from Maine and Massachusetts comprised 94 percent of the total landings. Maine, for the 35th consecutive year, accounted for the highest landings in the nation 132 million lb (60,000 mt) valued at $537.9 million, with Massachusetts taking second with landings of 17.7 million lb (8,029 mt) valued at $82 million (Fisheries of the US, 2016). Total coastwide landings followed an increasing trend from 2008-2013. Since 2013, annual landings have decreased, with the exception of 2016. Federal landings follow a similar trend, with landings decreasing after 2013. Federal landings have accounted for ~50-58% of the total coastwide landings from 2008-2016. Federal landings

accounted for a high of 58% in 2009 and most recently 51% in 2017 of the total coastwide landings. Overall, the percentage of federal landings to total coastwide landings has not changed significantly from 2008-2017.

In contrast, landings in 2007 and 2008 were nearly identical but the landed value of lobster fell by $60 million as the price per pound fell from $4.42 in 2007 to $3.73 per pound in 2008. The price of lobster has continued to decline since 2007, reaching a low of $2.87 per pound in 2012. Despite annual price declines, lobster revenues have improved since 2008 due to an increase in landings from 79.3 million lb (35,970 mt) in 2008 to 149.5 million lb (67,812 mt) in 2012. Despite a minor drop in landings, average price climbed to $4.20, leading to an increase in overall value to over $667 million for 2016, the highest in recent history.

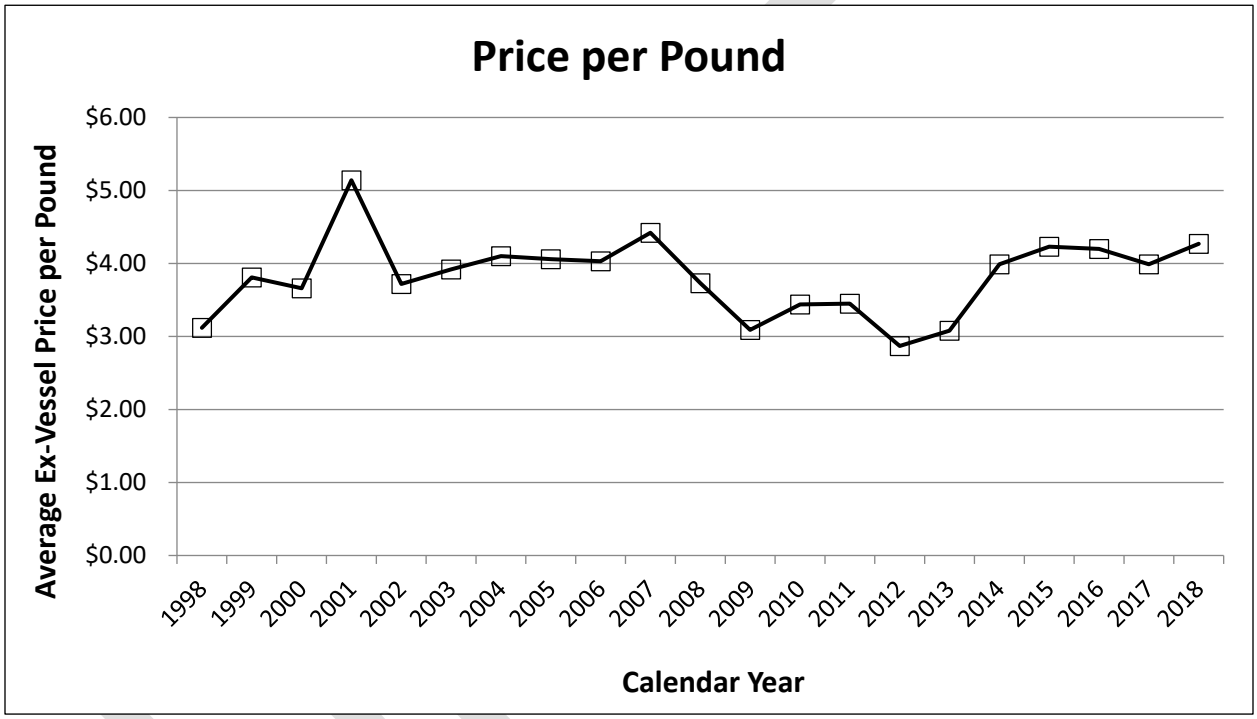
Table 8. Landings and Inflation Adjusted Value and Price per Pound – 1998-2017

Year	Value (millions)	Landings (millions)	Price per Pound
1998	$248.4	79.5	$3.12
1999	$337.3	88.6	$3.81
2000	$316.9	86.6	$3.66
2001	$365.8	71.2	$5.14
2002	$316.3	85.1	$3.72
2003	$287.8	73.4	$3.92
2004	$366.3	89.3	$4.10
2005	$354.3	87.3	$4.06
2006	$369.3	91.7	$4.03
2007	$355.9	80.6	$4.42
2008	$295.5	79.3	$3.73
2009	$310.2	100.5	$3.09
2010	$404.1	117.6	$3.44
2011	$422.9	126.3	$3.35
2012	$431.5	150.4	$2.87
2013	$460.8	150.3	$3.07
2014	$567.2	148.0	$3.83
2015	$622.1	147.0	$4.23
2016	$670.1	159.4	$4.21
2017	$567.0	136.9	$4.14
2018	$630.4	147.5	$4.27

The reasons for the decline in ex-vessel prices in the mid-2000's are partially rooted in the collapse of Icelandic banks in 2008, which are an important source of financing for Canadian lobster processors – a sector which routinely purchases and processes about half of the Maine lobster harvest each year and ships it worldwide to restaurants, cruise lines and supermarkets (CNN, 2009). Without financing from the Icelandic banks, Canadian processors lacked the capital to purchase Maine lobster, cutting the largest market for Maine lobstermen and processors. Domestic markets were also diminished as poor economic conditions in the U.S. limited the purchasing power of U.S. consumers on expensive seafood choices such as lobster, despite record low retail prices. Lobster fishermen were further affected by high costs of bait and fuel, which added to the expense of lobster fishing and decreased profits because revenues were reduced by low wholesale prices (CNN, 2009). Lobster prices typically follow a seasonal pattern corresponding with peaks and valleys in landings. Prices tend to be highest during late winter and early

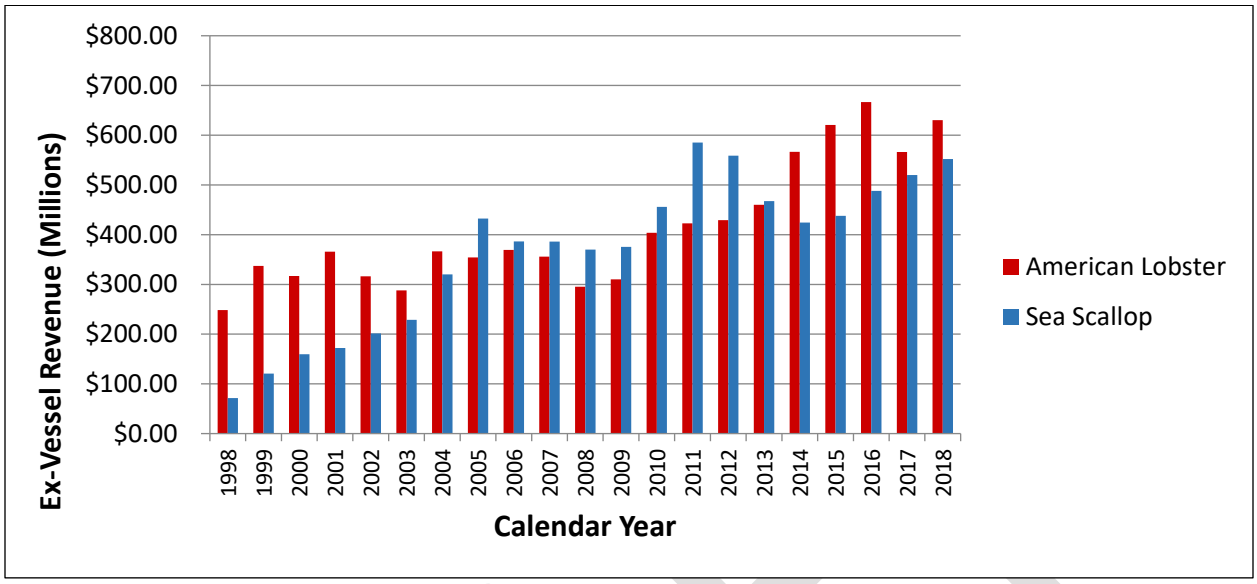
spring months when available supplies are low, and during the summer and fall, prices tend to be lower when supplies are high. The fall months correspond with a period of high landings and reduced demand for live lobster. In the past a substantial portion of the excess supply of lobster harvested during the fall were sold to Canadian processors or pound operators. This available market tends to keep ex-vessel prices higher than they would be if this market were not available. The loss of capital to Canadian processors due to the collapse of the Icelandic banks caused a drop in the ex-vessel price to $2.87 in October 2008. Prices remained below $3.00 per pound in November and December 2008 and in the sub-$3.00 per pound range during much of the late summer and early fall months of 2009. Since then, average price per pound increased to about $4.00 in 2014, and has remained relatively stable through 2018.

Figure 7. Annual Average Price per Pound for American Lobster (1998-2018)



From 1998 to 2004 American lobster was the highest value fishery in the Northeast region ranging between $250 million and $366 million (Figure 8). In comparison, over the same period, scallop revenues grew steadily from $76 million to $316 million. Since 2005, annual revenues from the scallop fishery have exceeded those from the lobster fishery.

Figure 8. Annual Lobster and Scallop Fishery Revenues (1998-2018)



6.1.3 Location of the Commercial Lobster Industry

This section describes the historical participation in the commercial lobster industry from 2000 to 2018 at the state and local level in order to identify where geographically the most active parts of the industry are located. The data used for this analysis is based on the information available data from fishing years 2000 through 2018. At the state level, the Lobster fishery breaks down across LCMAs as indicated in the tables, below.

The American lobster fishery is conducted by harvesters from Connecticut, Maine, Massachusetts, New Hampshire, New York, and Rhode Island, with smaller contributions from New Jersey, Delaware, and Maryland, and states further south. While some more robust economic date exists on the Gulf of Maine fishery, little economic data has been collected on the SNE fishery, making it difficult to characterize this portion of the fishery. Data showing permits by state and area is provided in the tables below. The fleet is primarily comprised of "small vessels (22 to 42 ft or 6.7 to 12.8 m) that made day trips in near shore waters (less than 12 miles)."[13] Generally, larger vessels fish in the Area 3 portion of the fishery.

Table 9: Characterization of the 2018[14] Trap Fishery Permits by State

State	Active Area Permits	CPH Area Permits	Total Trap Permits (Active and CPH)	Area 1 Permits	Area 2 Permits	Area 3 Permits	Area 4 Permits	Area 5 Permits	Area OCC Permits
ME	1272	27	1299	1,305	2	10	1	0	1
NH	62	6	68	49	3	18	2	1	0
MA	377	21	398	276	72	49	2	1	17
RI	110	20	130	14	100	36	5	0	0
CT	11	0	11	1	6	1	3	1	0
NY	22	0	22	0	2	3	21	1	0
NJ	52	13	65	3	2	12	40	21	0

[13] Addendum 17

[14] Information presented in Table is based on GARFO Vessel Permit System data of permits issued, and not eligibilities

State	Active Area Permits	CPH Area Permits	Total Trap Permits (Active and CPH)	Area 1 Permits	Area 2 Permits	Area 3 Permits	Area 4 Permits	Area 5 Permits	Area OCC Permits
DE	5	1	6	0	0	0	0	6	0
MD	7	0	7	1	0	0	0	6	0
VA	5	0	5	1	1	1	1	2	0
NC	0	1	1	0	0	0	1	0	0
FL	1	1	2	1	0	0	1	0	0
Totals	1924	90	3068	1,651	188	130	77	39	18

Table 10. Characterization of the Total Trap Fishery Permits 2013-2018[15]

Year	Total Trap Permits	Area 1 Permits	Area 2 Permits	Area 3 Permits	Area 4 Permits	Area 5 Permits	Area OCC Permits
2013	2,452	1,755	369	106	63	30	129
2014	2,459	1,781	357	109	62	27	123
2015	2,115	1,658	185	136	77	40	19
2016	2,013	1,606	168	119	66	35	19
2017	1,996	1,601	172	107	64	35	17
2018	2,010	1,605	175	112	66	35	17

The following tables use best-available Federal permit data to provide some initial insight into the shifting presence of the lobster industry—geographically speaking—within all management Areas since 2000; both in terms of absolute numbers of participants (measured by number of vessels permitted), and how this participation breaks down by state. While these data provide a useful starting point for an analysis, they have a number of practical limitations that are noted below.

Table 11. Federal Trap Permits in Area 1 by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	2	4	6	5	6	1	1	1	0	0
MA	627	555	475	435	399	296	292	281	270	256
ME	1,130	1,356	1,396	1,364	1,354	1,379	1,371	1,367	1,263	1,219
NH	60	76	73	71	68	54	55	50	45	51
NJ	2	17	17	18	16	1	1	1	1	0
NY	2	12	10	9	8	0	0	0	0	0
RI	19	33	33	28	23	11	8	10	8	6
Other	15	14	14	13	11	4	4	5	3	3
Totals	1,857	2,067	2,024	1,943	1,885	1,746	1,732	1,715	1,590	1,535

[15] Information presented in Table is based on GARFO Vessel Permit System data of permits issued, and not eligibilities

Table 12: Federal Trap Permits in Area 2 by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	12	16	16	17	15	7	7	7	6	5
MA	253	204	176	161	132	59	59	63	67	63
ME	71	68	22	15	15	2	2	3	2	2
NH	10	12	11	7	6	0	3	3	3	3
NJ	10	24	28	25	27	2	2	1	1	1
NY	33	43	42	35	29	2	2	2	2	2
RI	215	201	169	161	154	92	93	93	93	92
Other	2	7	7	6	4	0	0	0	1	1
Totals	606	575	471	427	382	164	168	172	175	169

Table 13: Federal Trap Permits in Area 3 by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	3	4	2	2	1	1	1	1	1	0
MA	173	43	34	40	38	43	41	48	42	41
ME	393	18	6	7	11	9	9	0	8	10
NH	32	13	10	11	12	18	18	19	17	18
NJ	67	16	9	10	8	10	9	9	10	9
NY	23	10	5	4	4	4	4	3	3	3
RI	93	43	39	33	35	35	33	33	30	33
Other	22	3	4	3	3	2	2	1	1	1
Totals	806	150	109	110	112	122	119	107	112	115

Table 14: Federal Trap Permits in Area 4 by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	7	4	5	4	3	4	4	3	3	2
MA	33	0	0	0	0	1	1	1	2	2
ME	16	0	0	0	0	0	0	0	1	1
NH	0	0	0	0	0	0	1	3	2	3
NJ	92	44	40	42	42	34	34	31	32	32
NY	52	24	20	21	20	22	22	22	21	21
RI	39	1	1	0	0	3	3	5	3	4
Other	5	1	2	3	2	2	1	2	2	3
Totals	244	74	68	70	67	66	66	63	66	68

Table 15: Federal Trap Permits in Area 5 by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	1	1	1	0	1	0	1	1	1	1
MA	28	2	1	1	1	1	1	1	1	3
ME	15	1	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	1	1	1	1
NJ	74	22	22	25	24	20	19	18	18	19
NY	12	5	1	1	0	0	0	1	1	1
RI	9	0	1	1	1	0	0	0	0	0
Other	0	0	0	0	0	0	14	13	13	12
Totals	169	57	50	48	46	37	35	35	35	37

Table 16. Federal Trap Permits in Outer Cape Cod Area by State

	2000	2004	2007	2009	2012	2015	2016	2017	2018	2019
CT	1	3	2	2	3	0	0	0	0	0
MA	173	144	128	111	96	20	21	18	17	16
ME	17	9	4	4	2	0	0	0	0	0
NH	1	3	2	3	2	0	0	0	0	0
NJ	3	8	9	6	7	0	0	0	0	0
NY	1	4	4	4	1	0	0	0	0	0
RI	7	24	22	20	18	0	0	0	0	0
Other	4	5	8	4	4	0	0	0	0	0
Totals	207	200	179	154	133	20	21	18	17	16

First, while the data presented is the best available, it is best viewed as an approximation of industry participation in the lobster fishery. Exact figures are not available. Further, a true understanding of industry participation is not possible without considering the behavior of fishermen in relation to the management constraints in which they operate. Under Federal regulations, vessel owners are required to designate which Areas they will be fishing in on their yearly permit applications. However, under past Federal regulations, permit holders could elect into Area 1, Areas 2, and OCC. A final rule (77 FR 32420, June 1, 2012) approved a limited entry in Areas 1 that caps and controlled the amount of effort in this area. A final rule (79 FR 19015, April 7, 2014) approved a limited access program in Areas 2 and OCC that caps and controlled the amount of effort in these areas. The number of permits in each of these areas has dropped significantly following the qualification, as occurred when limited access programs were implemented in Areas 3, 4 and 5 in 2003. Initially, there was little incentive for fishermen to limit themselves in terms of the areas in which their permits would allow them to fish and, as a result, many if not most fisherman simply "checked off" multiple Areas, regardless of whether they intend to actually fish in those Areas. This has created a sort of "dual reality," whereby participation "on paper" may be substantially different from the "true" level of participation. Looking at the data (Table 27), this effect is evident in Area 3: in 2000, 393 and 173 vessels from Maine and Massachusetts, respectively, designated Area 3 on their permits; once a limited-access program was implemented in 2003 (68 FR 14902, March 27, 2003), however, those numbers plummeted to 18 and 43, and fell even further, to 6 and 34, by 2007. The number of lobster permit holders electing Area 3 remained relatively stable from 2008 to 2019. Since individual fishermen qualified into Area 3 according to their documented historic participation, it can be argued that in the years following the Area 3 limited access program, the numbers more accurately

reflect actual fishing effort in that Area, even historically speaking, compared to the much higher numbers recorded for 2000. This same "dual reality" would also apply in all other areas. Further, as regulations have, more recently, become more complex with area-specific measures, the Most Restrictive rule created a disincentive to elect multiple areas, as introduced in Section 4.3.

Given these limitations, it is most relevant to consider the participant data in absolute terms and in terms of change over time, rather than as exact numbers. Using this approach, based on the relative number of trap vessels across states, the data show in general that, in Area 1, Maine is the major participant, followed by Massachusetts and New Hampshire. In Areas 2 and 3, Massachusetts and Rhode Island are the major participants (both historically and based on the most recent 2015 data), followed by New Hampshire, New York and New Jersey. Similarly, in Areas 4, New Jersey and New York are the major participants (both historically and based on the most recent 2019 data), followed by Connecticut. Finally, in Areas 5, New Jersey is the major participant (both historically and based on the most recent 2015 data), followed by Delaware and Maryland. Further, overall participation has been declining among the major participants across all Areas, with participation in Area 3 showing the most dramatic decrease over the 8-year period from 2000 to 2007.

Figures 9-14 graphically illustrate the data presented in Tables 11-16 for the distribution of vessels across states from 2000-2019. Overall the results support what NMFS would intuit is occurring across lobster management areas. Maine remains the largest contributor of participants in Area 1. In Areas 2 and 3, for example, one would expect the contiguous states to have the largest number of participants, in this case, Massachusetts and Rhode Island, because of the day-boat nature of the fishery (as described earlier). Further, in Massachusetts and Rhode Island, the number of participants has declined over time. This is most likely due to the influence of the Most-Restrictive Rule (see Section 4.3); and the implementation of a limited access program at the state level, combined with restrictions on gauge size and other broodstock protection measures in the Area that were implemented during this period, discouraging its use by some fishermen.

Figure 9. # Area 1 Trap Permits by State (2000-2019)

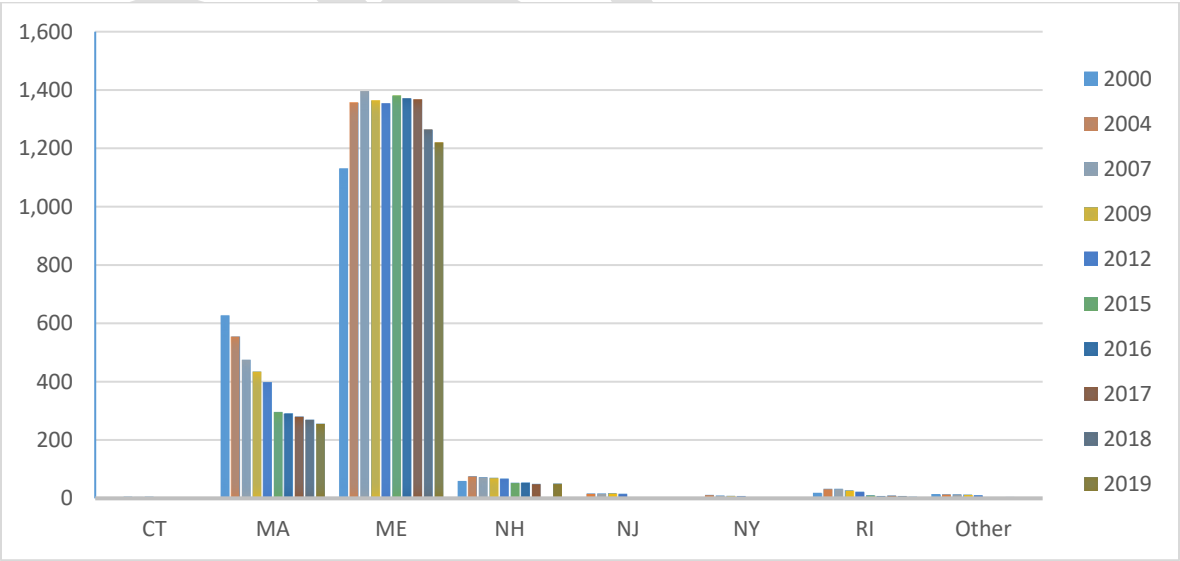


Figure 10. # Area 2 Trap Permits by State (2000-2019)

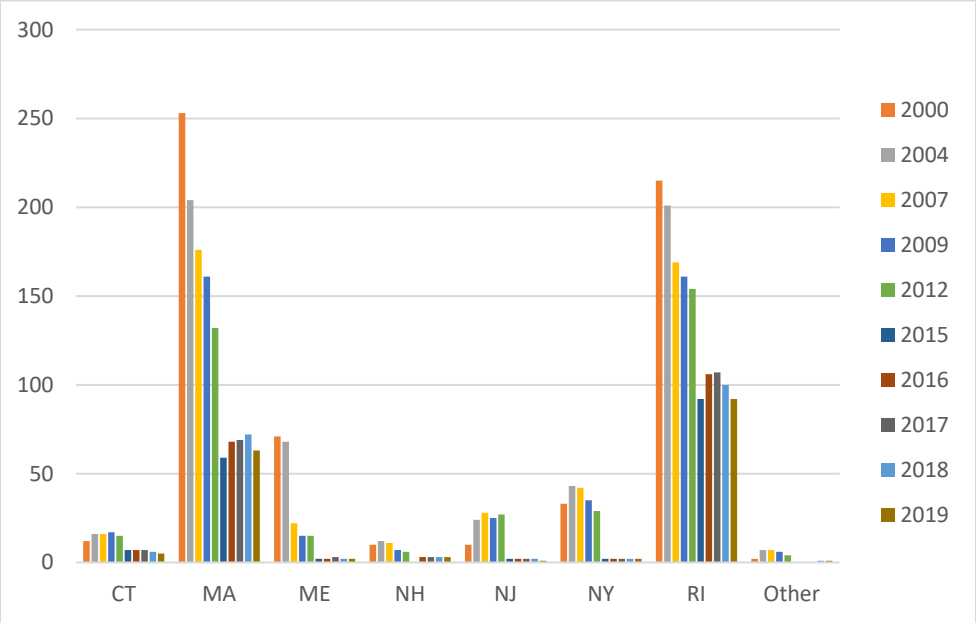


Figure 11. # Area 3 Trap Vessels by State (2000-2019)

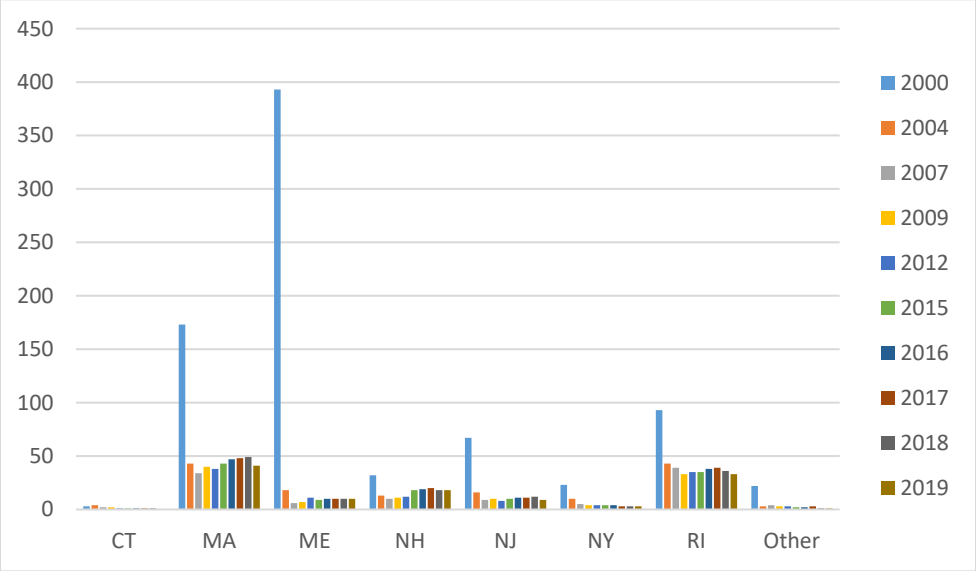


Figure 12. # Area 4 Trap Vessels by State (2000-2019)

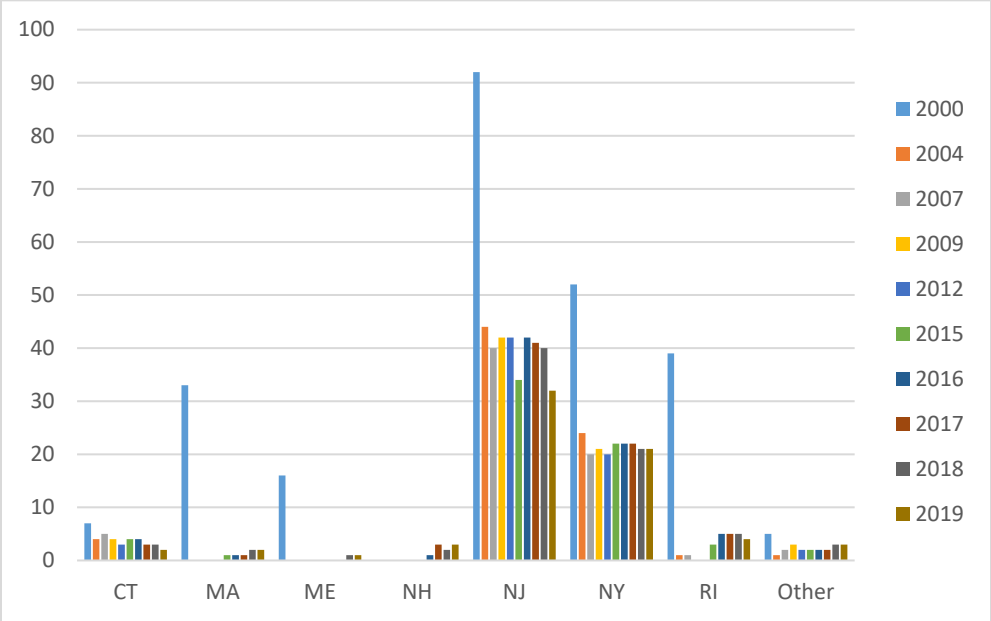


Figure 13. # Area 5 Trap Vessels by State (2000-2019)

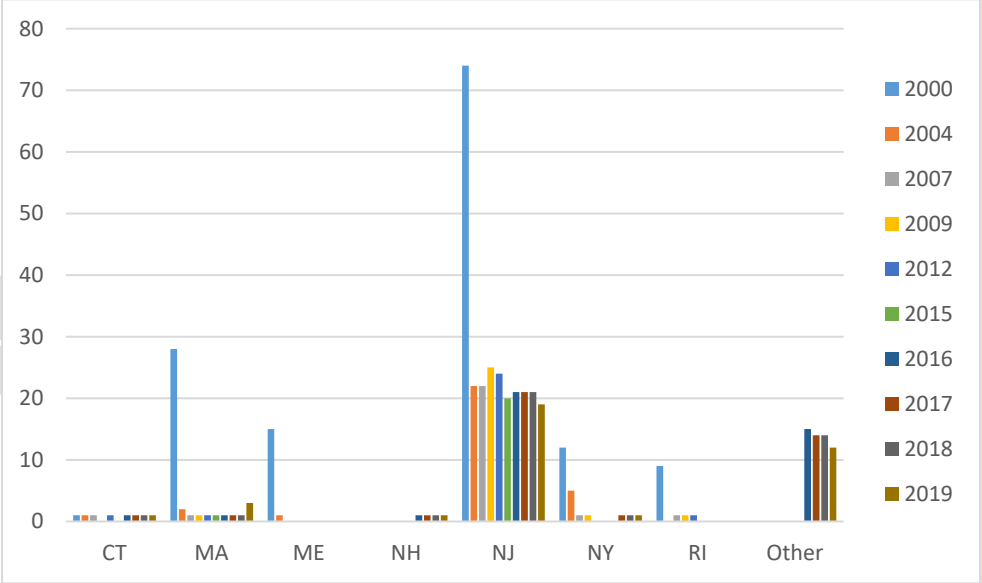
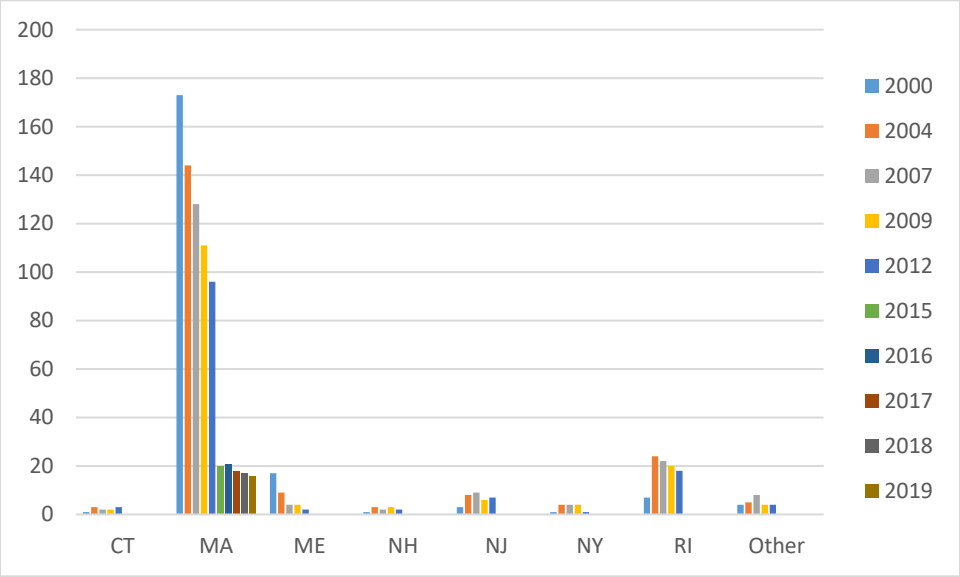


Figure 14. # Outer Cape Cod Area Trap Vessels by State (2000-2019)



While these results begin to characterize the commercial lobster fishery, they tell only about the size of the industry over time; making the link between the number of vessels (i.e., licenses) and the amount of fishing effort is more difficult. Table 17 summarizes lobster permits and traps by Area for 2019.

Table 17. 2019 Federal American Lobster Permits and Traps by State (All Permits)

State	Area 1 Permits	A1 Traps	Area 2 Permits	A2 Traps	Area 3 Permits	A3 Traps	Area 4 Permits	A4 Traps	Area 5 Permits	A5 Traps	Area OCC Permits	Area OCC Traps
ME	1,308	1,045,600	2	705	12	6,273	1	1,200	0	0	1	645
NH	49	39,200	3	304	19	21,665	3	3,020	1	1,440	0	0
MA	269	215,200	74	23,981	48	42,994	2	2,225	3	830	17	8,954
RI	14	11,200	105	45,558	39	33,529	6	3,984	0	0	0	0
CT	1	800	5	2,544	0	0	2	1,600	1	875	0	0
NY	0	0	2	980	3	1,964	22	20,623	1	600	0	0
NJ	3	2,400	2	506	9	8,998	37	42,370	20	12,859	0	0
DE	0	0	0	0	0	0	0	0	6	6,730	0	0
MD	0	0	0	0	0	0	0	0	5	4,300	0	0
VA	2	1,600	1	1	1	6	2	1,680	3	2,400	0	0
NC	0	0	0	0	0	0	1	800	0	0	0	0
FL	1	800	0	0	0	0	1	900	0	0	0	0
Totals	1,647	1,316,800	194	74,579	131	115,429	77	78,402	40	30,034	18	9,599

As with industry participation, there is no readily available data that precisely measures fishing effort within the American Lobster fishery. One cannot, for example, assume that an individual fisher who purchases 800 traps actually fishes all of those traps, and there is no official record keeping of what is actually fished in the Federal reporting data, given that all permit holders are not required to report. In addition to being authorized to fish for lobster through a limited access permit (and additional area trap qualifications), state and Federal commercial lobster fishermen must purchase a trap tag that must be affixed to each lobster trap deployed. Trap tag eligibility is another method for estimating the number of

traps that were fished. Given this lack of information, NMFS considered trap tag[16] data by state and Area from 2000-2017 as a proxy for fishing effort. In using this data, we acknowledge that trap reductions do not fully equate with an equal or proportionate reduction in fishing effort; we believe, however, that, in gross terms, data showing trends in trap tags purchased over time is useful in combination with other indicators to demonstrate existing conditions within the lobster fishery. Table 18 presents Federal trap tag data from 2001 through 2017 across all Federally managed areas. Table 19 presents a summary of 2017 trap tag orders by state.

Table 18. Federal Trap Tag Data

State	2017 Active Area Permits	Trap Tags Authorized*	Trap Tags Ordered†	A1		A2		A3		A4		A5		A6		AOC	
				Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*
CT	10	2,480	1,260	1	0	4	1,260	1	0	3	0	1	0	0	0	0	0
DE	7	5,820	4,983	0	0	0	0	0	0	0	0	5	4,983	0	0	0	0
MA	374	264,537	232,695	261	169,260	63	21,182	41	35,858	1		1		0		17	8,155
MD	5	4,300	3,390	1	0	0	0	0	0	0	0	6	3,390	0	0	0	0
ME	1,342	1,026,990	936,896	1,282	944,770	3		1	1,390	0	0	0	0	0	0	0	0
NH	61	63,349	52,429	45	26,740	3	0	19	25,689	3	0	1	0	0	0	0	0
NJ	53	58,876	33,521	1	500	1	0	9	5,589	31	21,441	18	5,991	0	0	0	0
NY	23	34,655	6,487	0	0	2	0	3	0	22	6,487	1				0	
RI	116	116,485	75,585	10	6,382	93	33,316	33	35,887	3	0	0	0	0	0	0	0
VA	4	3,200	880	0	880	0	0	1	0	1	0	2	0	0	0	0	0
FL	1	900	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1,996	1,581,592	1,348,126	1,602	1,148,532	169	55,758	108	104,413	64	27,928	35	14,364	0	0	17	8,155

**Note: "Tags" numbers will not correlate with the numbers for "Trap Tags Ordered" due to individual permit holders having permits that able them to fish more than one area at any one time.

†Note: Due to vendor turnover, there is a gap in trap tag data from 2013 and 2014. The data shown is what was available through state records and cooperation; but there are significant amounts of data missing.

Federal Trap Tag Data																	
Ordered Trap Tags by Area																	
Year	Active Area Permits	Trap Tags Authorized	Trap Tags Ordered	A1		A2		A3		A4		A5		A6		AOC	
				Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*	Active Permits	Tags*
2001	2,005	1,618,353	1,557,730	1,522	1,107,770	424	328,749	667	583,915	150	116,734	71	52,794	39	34,360	133	102,264
2002	1,971	1,580,745	1,591,504	1,559	1,201,794	401	325,422	640	573,233	146	122,445	83	64,070	33	29,673	129	101,005
2003	1,913	1,550,786	1,493,756	1,521	1,124,430	303	223,069	439	415,270	107	82,652	62	47,938	26	20,350	65	48,810
2004	1,926	1,620,046	1,557,987	1,236	970,729	170	132,920	90	121,310	69	49,904	32	20,855	25	17,912	8	5,800
2005	1,847	1,535,639	1,514,261	1,515	1,203,004	245	181,191	99	149,578	55	48,082	17	13,254	24	18,840	49	29,184
2006	1,964	1,688,697	1,616,195	1,666	1,321,557	203	159,020	88	134,146	47	46,553	13	10,267	17	13,880	47	31,668
2007	1,920	1,659,876	1,578,764	1,617	1,297,313	193	133,500	84	126,802	47	44,699	16	14,057	14	12,270	45	30,592
2008	1,850	1,593,643	1,523,364	1,553	1,248,105	197	138,535	79	117,551	49	97,625	17	12,566	18	15,814	47	34,084
2009	1,691	1,469,598	1,324,667	1,398	1,055,407	169	114,580	72	110,025	44	45,844	15	12,141	13	9,895	33	21,143
2010	1,807	1,472,332	1,415,707	1,517	1,215,414	163	111,783	72	105,892	46	46,633	18	12,816	15	11,525	23	13,841
2011	1,763	1,435,328	1,378,370	1,497	1,132,882	149	101,271	70	99,949	40	40,228	15	11,042	12	9,205	20	12,488
2012	1,758	1,435,817	1,381,609	1,480	1,123,529	147	98,973	74	108,140	39	37,971	19	15,321	12	9,285	20	12,395
2013†	153	141,748	146,651	39	30,134	82	61,700	35	56,931	1	880	0	0	4	3,380	1	772
2014†	132	129,000	1,066,281	6	940,010	77	57,862	26	44,160	24	24,083	9	8,929	4	3,480	5	2,957
2015	1,729	1,405,976	1,347,429	1,489	1,122,052	120	80,388	66	98,800	28	29,611	17	13,297	6	5,788	16	8,748
2016	1,947	1,526,914	1,342,618	1,546	1,151,227	153	79,587	93	106,428	61	22,994	32	11,654	8	0	18	10,649
2017	1,996	1,581,592	1,348,126	1,602	1,148,532	169	55,758	108	104,413	64	27,928	35	14,364	0	0	17	8,155

†"Trap Tags Ordered" may exceed "Trap Tags Authorized" because any permit holder may order an additional 10% tags in excess of their trap allocation as replacement tags.

*Note: "Tags" numbers will not correlate with the numbers for "Trap Tags Ordered" due to individual permit holders having permits that enable them to fish more than one area at any one time. For example, if a permit holder is authorized to fish 800 traps and holds permits for Areas 2 and 3, those 800 traps will contribute to both the Area 2 and Area 3 "Tags" columns but will be counted once in "Trap Tags Ordered" column.

In general, trap tag data show mixed trends by area. In Area 1 orders have been relatively stable, which would be expected following limited entry in 2013 and trends in abundance.

[16] A "trap tag" is a marker tag permanently attached to the trap bridge or central cross member of a lobster trap, identifying permit number, permit year, authorized management area and/or trap number.

The trap tag data show that, concurrent with a significant reduction in the number of vessels participating in the lobster fishery from 2000-2007, the number of trap tags[17] purchased for Area 2 also declined across all states by a dramatic 50-to-82% over the same time period. Important to consider, however, is that this reduction to a large degree reflects the more accurate accounting of fishing effort that could take place once the Most Restrictive Rule (see Section 4.3) was implemented in 2004. Further, Massachusetts implemented state-level requirements that only those permit holders who landed their catch within the state could qualify for trap tags. These measures together helped to eliminate a significant degree of the "dual reality" conditions describe earlier, where the level of effort "on paper" was more than the actual level of effort taking place. In this context, the decline in trap tags purchased represent a certain amount of reduction in effort (unquantifiable) combined with more accurate accounting (also unquantifiable). When we look at the trap tag data over the more recent period that includes the current suite of trap reductions and trap transferability, we see that trap tag purchases have declined commensurate with the aggregate trap reductions. If we assume all trap tags are fished and compare it with the overall total trap allocations for Area 2 on an annual basis, we see a trend that some latent effort still exists in the Area 2 fishery. Taking the three-year average of the number of tags purchased from 2015-2017, and comparing it with the total number of allocated traps, we see about a 25 percent latency rate in Area 2.

Trap tag purchases for Area 3 also show declines of 62 percent to 73 percent from 2000-2007 for Massachusetts and Rhode Island, respectively. These declines were largely driven by the implementation of a Federal limited access program for Area 3 (68 FR 14902, March 27, 2003), combined with the Most Restrictive rule. The numbers for the later 2004-2007 years are also thus a more accurate reflection of actual fishing effort (a conclusion supported by the relatively strong correlation between the number of vessels electing Area 3 and the number of vessels purchasing trap tags, as well as the number of trap tags authorized and the number of trap tags purchased). The overall trend of total tags ordered from 2000-2011 shows a decline in tags ordered across Areas 2, 3, 4, and 5, most likely a reflection of limited access trap programs in these areas during that period as well as former trap reductions in Area 3. Disregarding the incomplete trap tag data from 2013 and 2014, and given the onset of trap transferability, we see an increase in the number of trap tags purchased from 2015-2017 for Area 3, back to levels seen in 2011. This increase could represent a slight uptick in actual fishing effort as trap allocations are transferred and consolidated, but at minimum likely represents harvesters attempting to maintain a status quo level of effort. Additionally, the delay in implementing the Addendum XXII trap caps for Area 3 may have allowed the activation of trap gear as permit holders strive to rebuild their allocations to the 1,945 trap limit through transferability, without the annual reductions in the overall individual and aggregate trap caps.

In particular, traps can be a driver affecting both costs and profitability. A business's fishing power will increase with more traps, but so too will the costs associated with maintaining, baiting and tending higher trap levels. The profitability associated with a permit holder's trap allocation becomes even more critical during the trap reductions scheduled for Areas 2 and 3 as required under the Commission's Plan. For those fishermen who do not fish their entire allocation, the pending trap cuts may simply remove latent traps that are not being fished. In other words, if a person is only actively fishing 75 percent of his or her allocation, then a 25 percent cut to that allocation might have little or no impact to the fishing operation (although loss of that unused allocation might prevent the person from earning profits as a seller in the ITT program). For example, some permit holders order a full allotment of trap tags despite having no intention of actually placing the traps in the water (e.g. speculation), or if placed in the water the traps may not be baited or actively fished (e.g. holding ground). Conversely, if active traps are cut from a

[17] See Appendix 8 for trap tag tables.

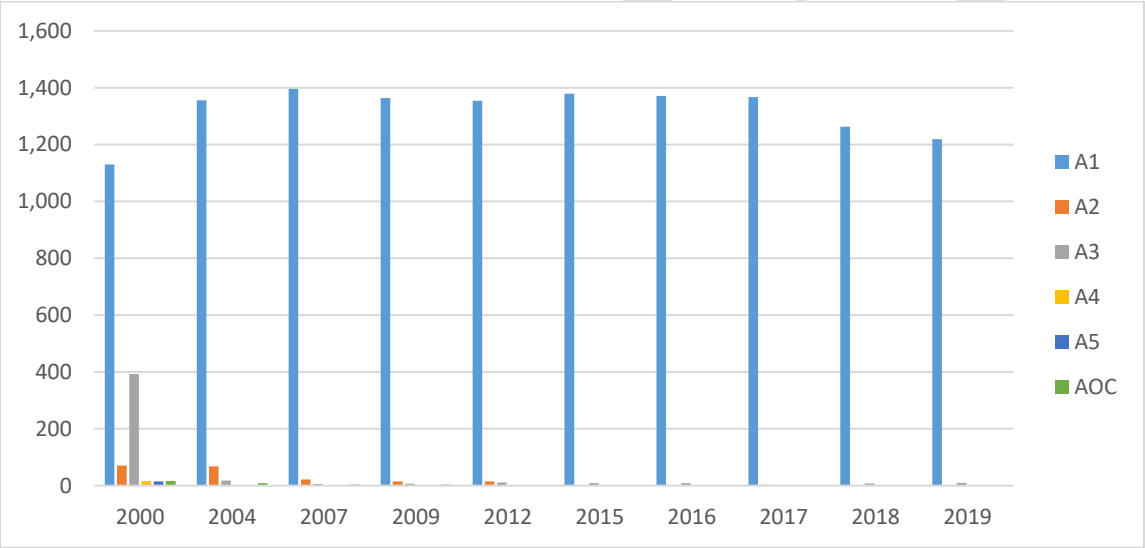
lobster fisher's allocation, fishermen may attempt to recoup the loss in fishing power by fishing the remaining traps more aggressively, i.e., baiting and tending them more often. Still, for a certain unknown group of fishermen – particularly those fishing at maximum trap levels - the trap reductions will involve active traps that will negatively impact the profitability of the business although the degree of impact cannot be stated with precision given the numerous other variables affecting business profitability.

The following section analyzes industry participation in the American Lobster fishery state-by-state.

Maine

In Maine, the lobster fishery is dominated by Area 1 permit holders. Overall participation in the lobster fishery has declined across all Areas between 2000-2019. While a limited number of permits participated in the fishery outside of the Area 1 historically, that number has declined. The number of Area 1 permits remained relatively steady between 2007 and 2017, but have since declined. In general, these data are consistent with the impact one would expect to see following the implementation of the Most Restrictive Rule and a Federal limited access program for each area beginning in 2004.

Figure 15. Total # ME vessels in all Area (2000-2019)



A number of reasons may account for the loss of fishing vessels within a fleet and the data available are not robust enough to identify specifically how many vessels left for which reasons. Potential reasons, unquantifiable here, include:

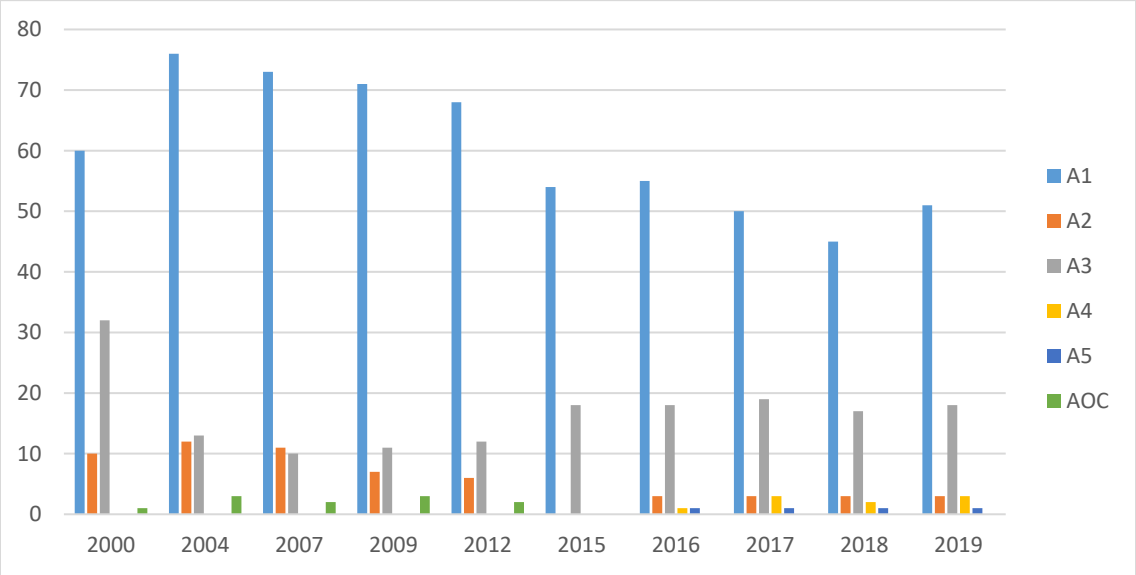
- More restrictive regulations that create a disincentive to stay in the industry:
  - Most Restrictive Rule[18] (requiring that a vessel owner abide by the more restrictive trap allocation of the Areas in which he/she fishes); and
  - broodstock measures, such as gauge limit size, etc.
- Owners transfer out of one Area and into another.
- Aging fishermen decide to retire from the industry.
- More accurate accounting as a result of Most Restrictive Rule and, in the case of Area 3, the move to a Federal Limited Access Program within Area 3, both of which helped to close the "gap" between what the size of the industry looked like "on paper" versus how many vessels were actually fishing in elected management areas.

[18] See Section 4.3 of this EA for a detailed description of the Most Restrictive Rule.

New Hampshire

Similar to Maine, the New Hampshire lobster fishery is dominated by Area 1 permit holders, with a fleet of offshore Area 3 vessels. Overall participation in the American Lobster fishery has declined across all Areas between 2000-2019. Area 1 participation declined following the sub-qualification of the area in the early 2010s. Since that time, the number of permits has fluctuated around 50. Similarly, the number of Area 3 permits has declined over the time series, but more recently has held relatively steady 18 permits. Participation in all other areas has historically been low, but has also declined over the time series.

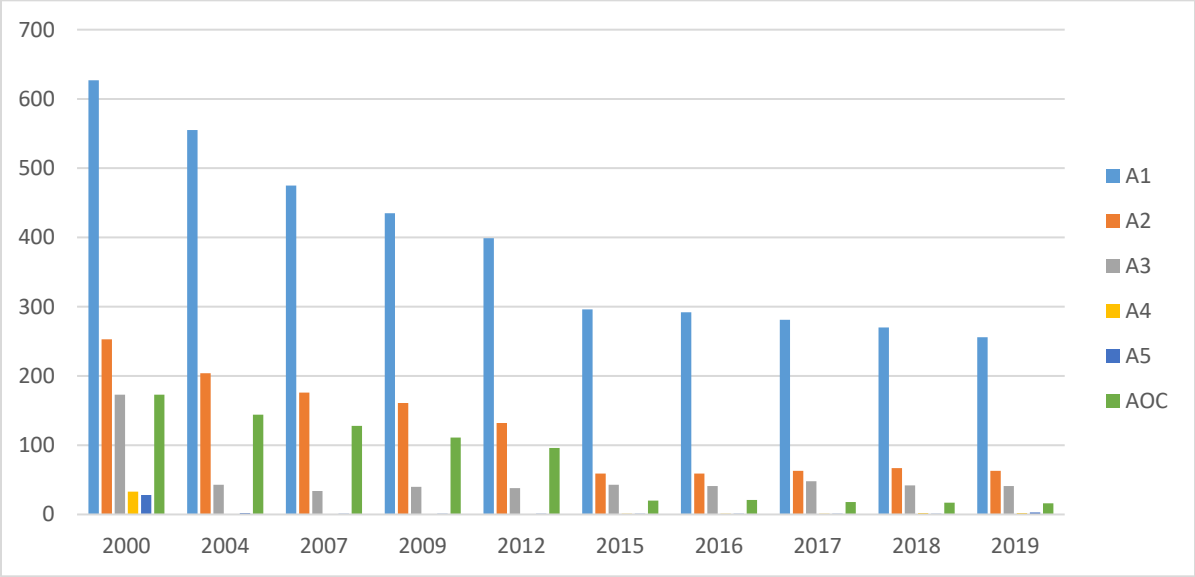
Figure 16. Total # NH vessels in all Area (2000-2019)



Massachusetts

In Massachusetts, overall participation in the American Lobster fishery has declined across all Areas between 2000-2019. Consistent with other states, Area 1 participation declined following the sub-qualification of the area in the early 2010s but has since remained stable. A dramatic decline occurring in Area 3 between 2000 and 2004 (Figure 15), following the sub-qualification of that area. There was also a slight increase in Areas 2 and 3 from 2015-2019, which could be attributed to the implementation of the trap transfer program and fishermen "buying in" to the areas. Outer Cape Area participation has declined, and now is entirely within Massachusetts.

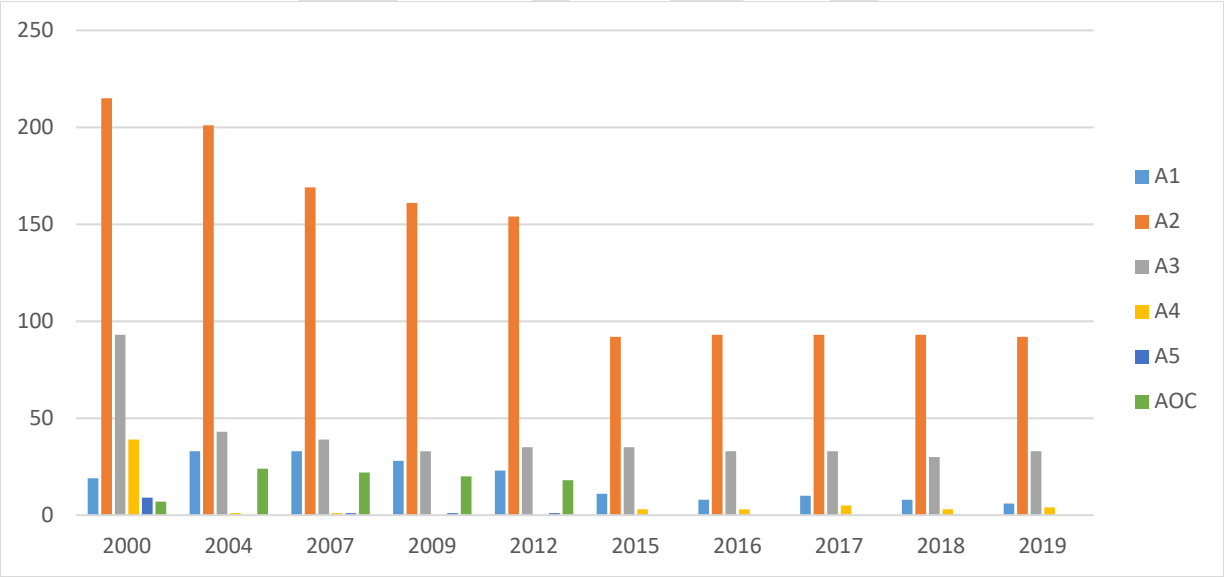
Figure 17. Total # MA vessels in all Area (2000-2019)



Rhode Island

For Rhode Island, participation in Area 2 dominates across all time periods relative to all other areas. All Areas showed moderate-to-substantial decline in participation during the 2000-to-2019 period.

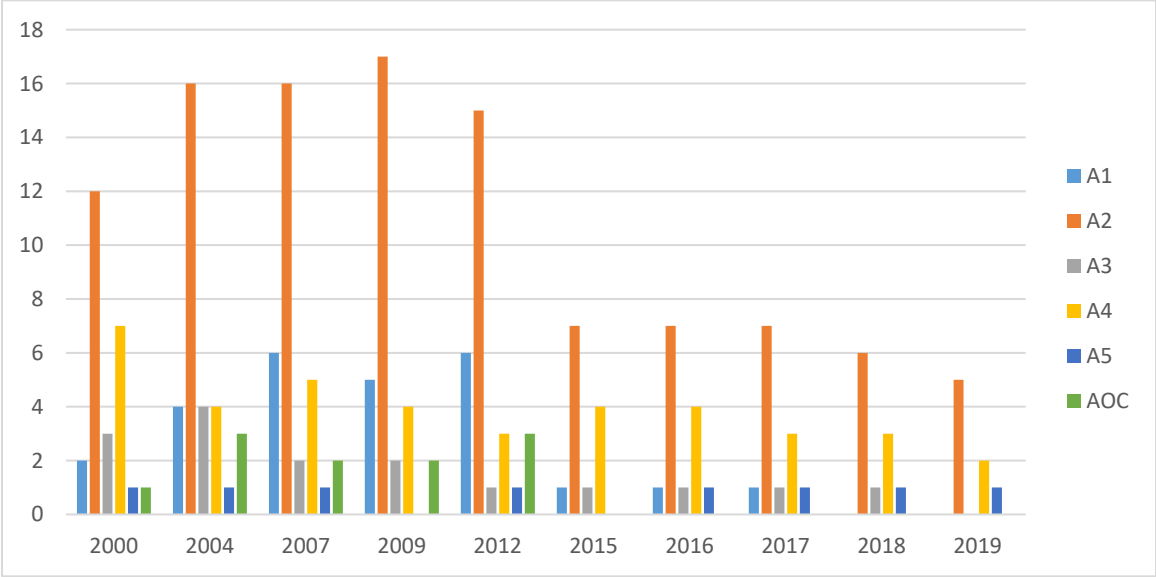
Figure 18. Total # RI Vessels in all Areas (2000-2019)



Connecticut

In Connecticut, overall participation in the American Lobster fishery has declined across all Areas between 2000-2019, with the most dramatic decline occurring in Area 2. In general, these data are consistent with the impact one would expect to see following the implementation of the Most Restrictive Rule. Because of its proximity to Area 6, which encompasses the entirely of Long Island Sound, many Connecticut permits include Area 6 designations.

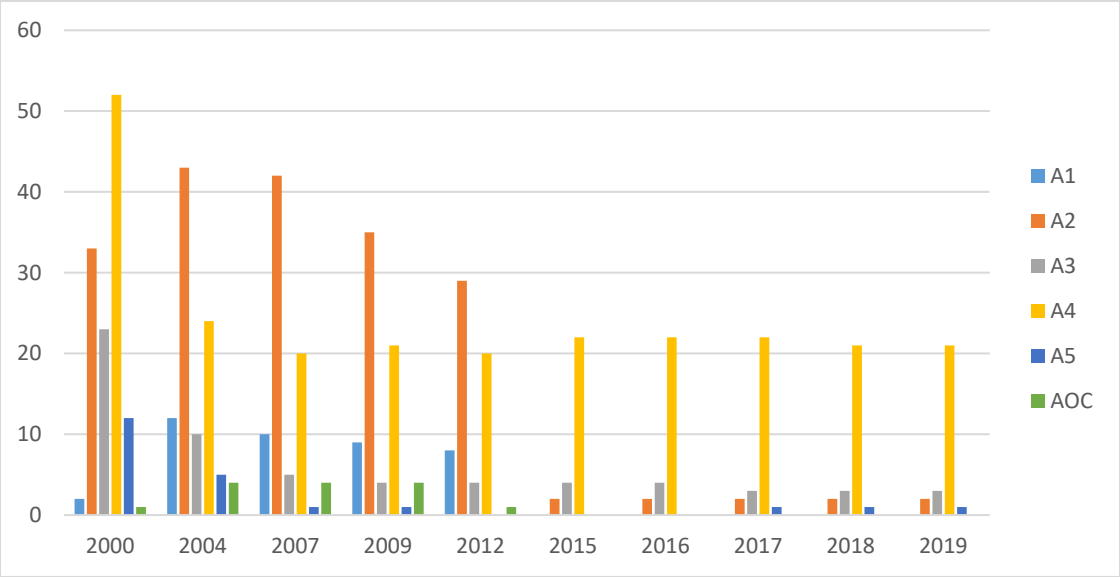
Figure 19. Total # CT Vessels in all Areas (2000-2019)



New York

For the New York fishery overall, what stands out is the shift in participation away from Areas 3, 4, and 5 following the implementation of a Limited Access Program there in 2004, into Area 2 which shows that after the implementation of the limited access program, an increase in the number of vessels designating Area 2 on their permits. This is likely due to the fact that there was no restriction on designating Area 2 until 2016, so permit holders may have chosen to designate that area while the opportunity presented itself. That level of participation began to drop again in 2009 and is now capped due to the Area 2 limited access program which ultimately qualified only a very few New York vessels. The New York fishery is now dominated by its Area 4 permit holders.

Figure 20. Total # NY Vessels in all Areas (2000-2019)

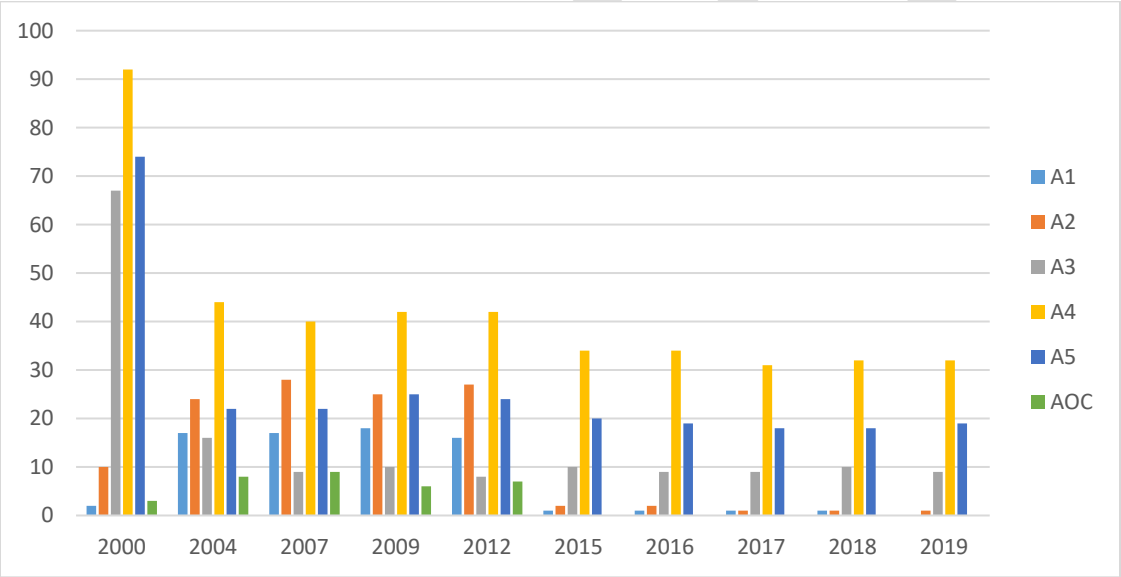


In terms of absolute numbers of vessels, the most notable change occurred in Area 3, which decreased from 16 to 4 over the 12-year period (2000-2012)--a 75 percent drop. This is consistent with the changes noted above that took place in the NY fishery following the implementation of a Limited Access Program for Area 3. A similar decrease is noted in Area 4, with the number of permits being issued dropping by half. Participation in Area 5 from New York vessels has ceased during the time series. Also consistent is the increase from 2000 to 2007 in vessels that participated in Area 2, as boats migrated to other management areas once NMFS implemented a limited access program in Area 3. Since then, the Commission implemented a limited access program in Area 2, where the number of vessels decreased from 33 to 8 over a 5-year period—a 75 percent drop.

New Jersey

Historic participation has been greater in Areas 4 and 5, than Areas 2 and 3, largely due to proximity of these areas to New Jersey Ports, but has been greatest in Areas 4 and 5. It also indicates a shift in participation away from Area 3, following the implementation of a limited access program there in 2004, and into Area 2 from 2000-2007. The number of vessels decreased since 2012 for Area 2. In absolute numbers, the permits issued in all four areas have decreased during the time series.

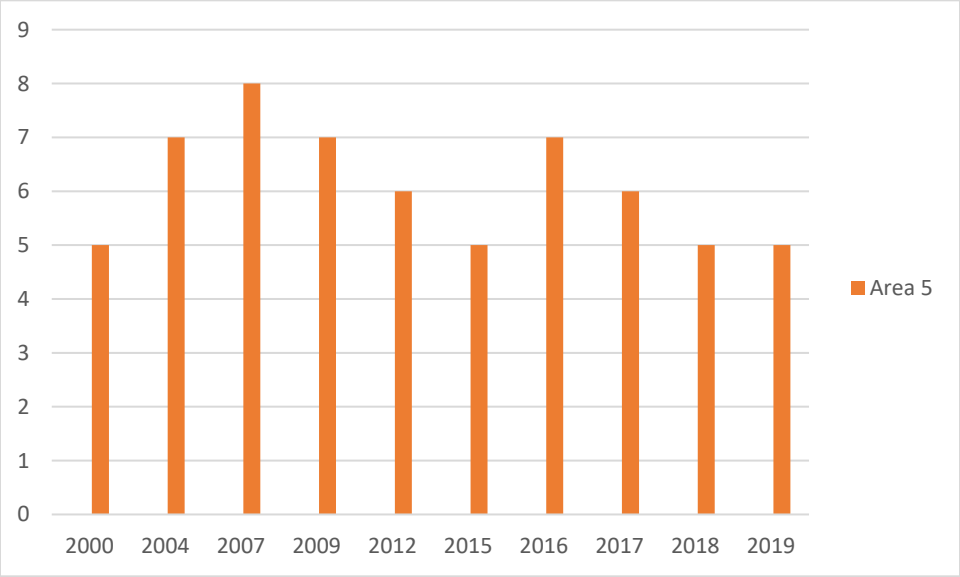
Figure 21. Total # NJ Vessels in all Areas (2000-2019)



Maryland

For the Maryland fishery overall, Federal data shows participation only in Area 5, largely due to proximity of these areas to New Jersey ports. Participation, measured by the number of permits issued, has remained constant, as compared with other states.

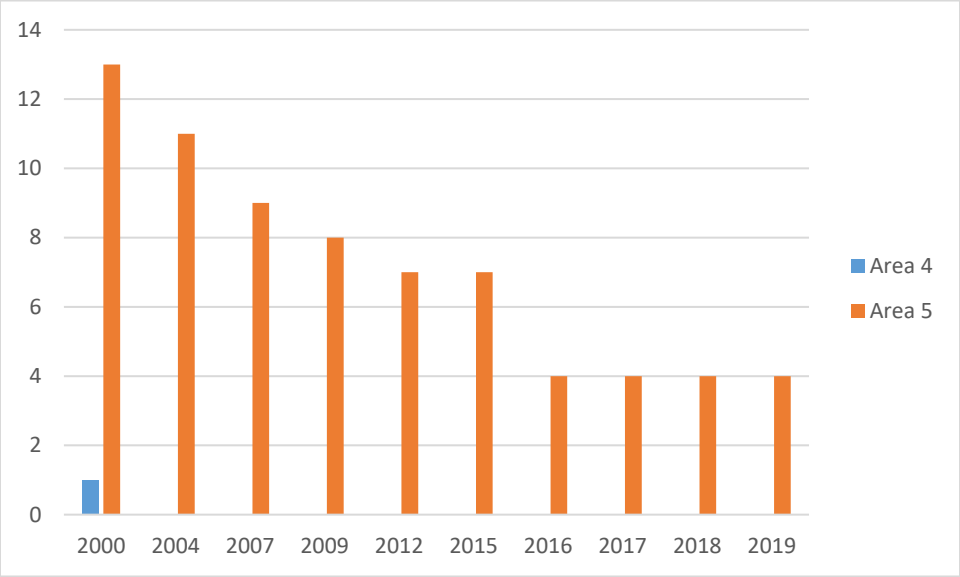
Figure 22. Total # MD Vessels in Area 5 (2000-2019)



Delaware

For the Delaware fishery overall, Federal data shows historic participation in both areas 4 and 5, but only recent participation in Area 5. Following the Limited Access program in Area 4, participation was eliminated. The number of permits issued for Area 5 to Delaware vessels has steadily dropped during the time series, with only half the number of permits issued in 2015 compared to 2000 (7 compared to 13).

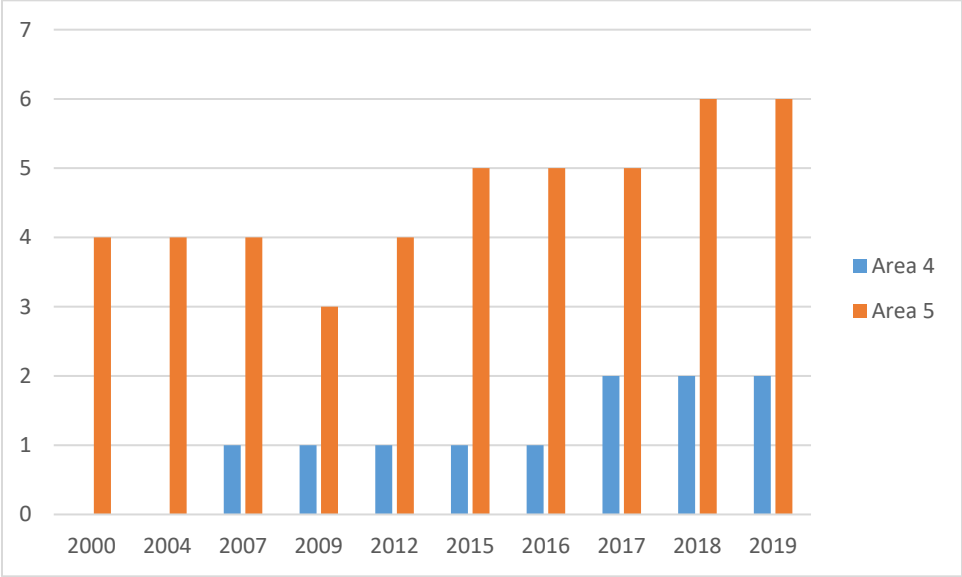
Figure 23. Total # DE Vessels in Areas 4 and 5 (2000-2019)



Virginia

For the Virginia fishery, Federal data shows historic participation only in Area 5, with more recent participation in Area 4. Participation, measured by the number of permits issued, has remained constant, as compared with other states, similar to Maryland.

Figure 24. Total # VA Vessels in Areas 4 and 5 (2000-2019)



6.1.4 Effects of Trap Reductions and the Trap Transfer Program on Trap Allocations

The six-year schedule of trap reductions in Area 2 and five-year reduction program in Area 3, along with the reductions from the conservation tax on all trap transfers, have resulted in a substantial reduction in potential (and likely real-time) trap fishing effort. The overall trend of total tags ordered from 2000-2011 shows a decline in tags ordered across Areas 2 and 3; a reflection of limited access trap programs in these areas during that period as well as former trap reductions in Area 3.

Table 20. Annual Areas 2 and 3 Trap Tags Ordered by Year

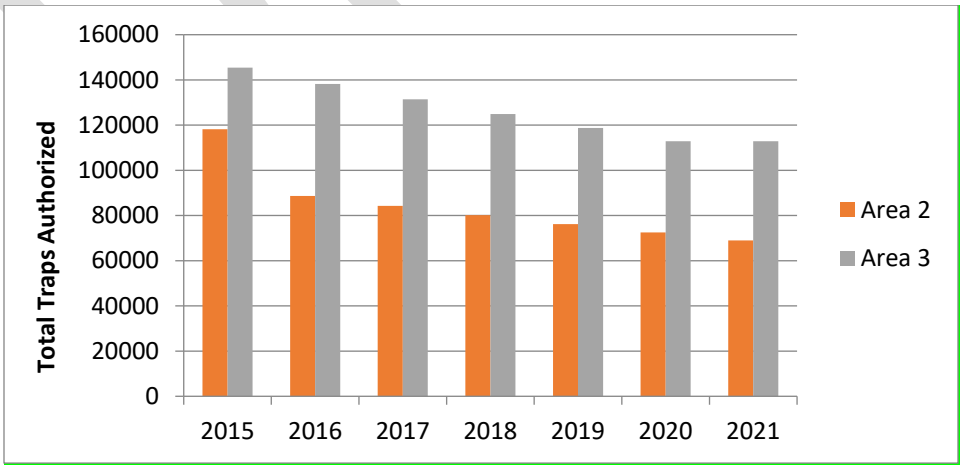
Year	A2		A3	
	Active Permits	Tags*	Active Permits	Tags*
2001	424	328,749	667	583,915
2002	401	325,422	640	573,233
2003	303	223,069	439	415,270
2004	170	132,920	90	121,310
2005	245	181,191	99	149,578
2006	203	159,020	88	134,146
2007	193	133,500	84	126,802
2008	197	138,535	79	117,551
2009	169	114,580	72	110,025
2010	163	111,783	72	105,892
2011	149	101,271	70	99,949
2012	147	98,973	74	108,140
2013†	82	61,700	35	56,931
2014†	77	57,862	26	44,160
2015	120	80,388	66	98,800
2016	153	79,587	93	106,428
2017	169	55,758	108	104,413

*Note: "Tags" numbers will not correlate with the numbers for "Trap Tags Ordered" due to individual permit holders having permits that enable them to fish more than one area at any one time.

†Note: Due to vendor turnover, there is a gap in trap tag data from 2013 and 2014. The data shown is what was available through state records and cooperation; but there are significant amounts of data missing.

As we see in Figure 23, the number of traps allocated to Areas 2 and 3 has seen a downward trend

Figure 25. Total Traps Allocated and Projected, 2015-2021

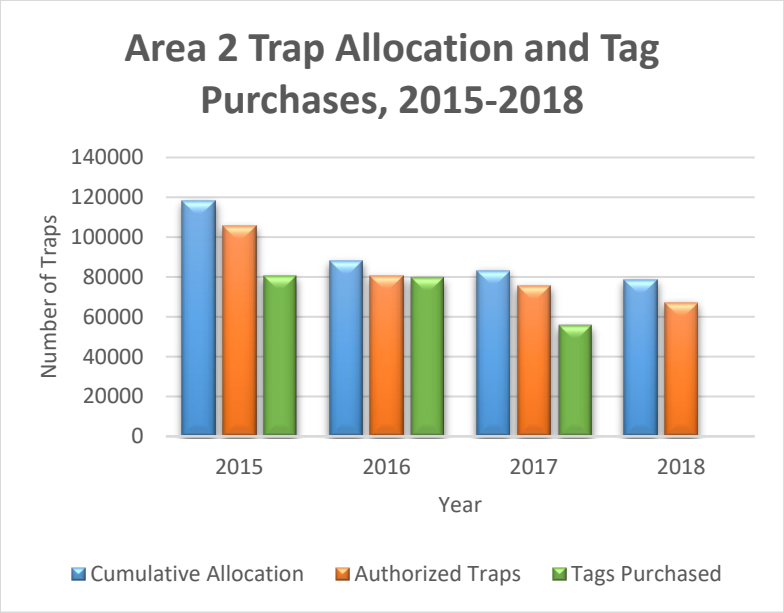


6.1.4.1 Area 2

As a reference, NMFS qualified about 118,881 traps to Federal Area 2 permits during the allocation process in 2015. That aggregate trap allocation has been reduced to approximately 74,581 traps as of the start of the 2019 fishing year. As Table 21 indicates, we estimate that the total Area 2 allocation will be just under 67,000 when the final transfers are accounted for in advance of the final annual trap reduction, effective May 1, 2021. Overall, we estimate that about 51,000 traps, or about 43 percent of the allocated Area 2 traps, will be removed from the fishery due to the annual trap reductions, conservation tax on trap transfers, and loss of traps due to leveling and rounding.

If we use annual trap tag purchases, as presented in Table 19 and Table 20, as a proxy for active effort (not an extremely accurate source given that not all tags are fished) we see that there are indications of some latent effort in the fishery. When we look at the trap tag data over the more recent period (Figure 24) that includes the current suite of trap reductions and trap transferability, we see that trap tag purchases in Area 2 have declined commensurate with the overall decline in traps from the annual reductions. If we assume all trap tags are fished and compare it with the overall total trap allocations for Area 2 on an annual basis, we see a trend that some latent effort still exists in the fishery. Taking the three-year average of the number of tags purchased from 2015-2017, and comparing it with the total number of allocated traps, we see about a 25 percent latency rate. However, states have indicated that latency may be much higher when basing active fishing on the number of traps reported fished to the states, compared to the total overall allocation. Rhode Island has indicated that the latency rate for dual permit holders with a Rhode Island license and Federal permit in Area 2 could be more than 70 percent (personal communication).

Figure 26. Area 2 Annual Trap Tag Purchases vs. Allocations 2015-2018



When we look at Area 2 landings and trips, however, the number of annual lobster trips and vessels actively landing lobster has shown a relatively downward trend, although 2018 shows a moderate increase in landings despite fewer vessels and trips. Overall, in Area 2, we see a decrease in active and potential traps and in active permits, as well as a minor decrease in the number of vessels landing lobster, with minor reduction in total trips yielding a relative increase in landings between 2017 and 2018, which may indicate higher catch rates in 2018 compared to 2017.

Table 21. Area 2 Permits Summary Based on Permit Renewal and Reported Landings, 2014-2018*

Total Federal Area 2 Permits and Maximum Allocated Traps			Active Federal Area 2 Permits and Allocation			Active Federal Area 2 Vessels Landing Lobster, Total Trips, Reported Landings			
YEAR	VESSELS	TOTAL TRAPS	YEAR	VESSELS	TOTAL TRAPS	YEAR	VESSELS	TRIPS	LOBSTER (LB)
2014	576	460,800	2014	315	250,016	2014	99	4,225	1,008,752
2015	184	118,188	2015	158	100,934	2015	92	3,838	910,222
2016	190	87,959	2016	155	76,008	2016	90	4,111	1,057,294
2017	191	83,198	2017	150	71,244	2017	87	3,739	723,462
2018	194	78,724	2018	145	64,270	2018	85	3,495	801,440

*Total permits columns (blue) represent the total number of permits with Area 2 allocations and the maximum number of allocated traps. The middle column (orange) shows data for those permits that were renewed for the fishing year and associated aggregate allocation. The right column (green) represents the subset of active vessels from the middle column that actually landed lobster and represents the number of actively fishing Area 2 vessels, number of trips and pounds landed.

The recent suite of trap reductions have likely helped to reduce latent traps because several permit holders have more than one permit and are likely using the additional permits as a surrogate bank (in the absence of a trap banking provision) to replenish their core, active permit. Therefore, some of those latent traps have been activated as a result, but those additional latent allocations on separate permits will also be reduced, lowering the overall pool of potential trap effort, through the conservation tax. Similarly, we can postulate that some active (and latent) effort has been reduced as a result of the trap reductions. Table 1 above summarized the annual trap reductions for Areas 2 and 3. If a permit holder's trap were reduced through the annual reductions and did not participate in the trap transfer program, the resulting allocation as of May 1, 2019 would be 515 traps. Analysis indicates that 38 permit holders have an allocation of 515 traps as of May 1, 2019, meaning they did not participate in the Trap Transfer Program and likely will not during the final year of trap reductions. This shows that some permit holders are not replacing traps lost due to the annual reductions and, therefore, on one hand, we can recognize these reductions as reductions in active effort. On the other hand, it could be that these allocations have not been fished, which would credit these losses to reductions in latent effort. But, given that these are single permit holders with relatively high allocations, they may be fishing these reduced allocations over time as an adaptation to the trap reductions. Regardless, we see from the tables above that the average number of traps per permit has reduced by about 40 percent, although the number of permits with an Area 2 allocation has increased slightly. This increase is likely due to the absence of banking which resulted in Area 2 fishermen acquiring lobster permits, possibly non-trap permits, as a vehicle for stockpiling extra trap allocation to mitigate the annual trap cuts.

As indicated in Table 22, in 2015, the initial trap transfer period, 7,050 Area 2 traps were transferred. After the 10-percent conservation tax was deducted, trap allocation buyers received 6,345 traps, with 705 traps permanently eliminated from the fishery, representing 7.2 percent of the aggregate Area 2 allocation (88,664 traps) after the first round of trap reductions. In 2016 and 2017, trap allocation buyers received 4,140 and 4,020 traps, respectively, with 414 and 402 traps permanently eliminated from the fishery. Most recently in 2018, only 1,780 traps were transferred with trap allocation buyers receiving 1,602 traps and 178 traps permanently retired from the fishery, a result of increasing scarcity of traps available for transfer. Most permit holders did not need to purchase as many traps in subsequent years as they did in year 1 because the reductions in years 2-6 reduced allocations annually only by 5 percent. Years 2 and 3 showed relatively similar numbers of traps transferred, while year 4 numbers went down by 2,240. This

could be a result of less traps being available following several years of the trap transfer program and annual trap reductions. Fishermen wishing to downsize or leave the fishery have had several years to sell off their traps, and fishermen wishing to expand or maintain their allocations have purchased the traps that were available. As of the start of the 2019 fishing year, 1,699 Area 2 traps have been permanently removed due to the conservation tax. Trap transfers have shown a downward trend since the start of the trap reduction schedule, likely due to increasing scarcity of traps. If we estimate that trap transfers decrease by about 10 percent per year each of the last two trap reduction years (2020 and 2021), then we can expect an additional 304 traps to be removed from the fishery from the conservation tax, with a total estimated removal of about 2,002 traps. A small amount of traps are removed from the fishery due to rounding during the trap transfer process and because permit holders may need to buy more traps than they need to reach the trap cap due to the requirement that all transfers occur in multiples of 10. Ultimately, the trap reductions, conservation tax, and associated administrative reductions from transfers would reduce the overall Area 2 trap base from 118,188 to about 66,000 traps. This equates to an approximate reduction of about 52,000 traps, or about 44 percent.

Table 22. Summary of Area 2 Trap Transfers, Annual Reductions, and Conservation Tax, 2015-2019

Application Year	Total Trap Allocation	Annual Trap Reductions	Number of Traps Transferred Out	10% Tax on Trap Transfers	Number of Traps Transferred In	Trap Loss from Cap Limits, Renew or Lose, or Leveling	Balance at the Start of the Next Fishing Year
2015	118,188	29,524	7,050	705	6,345	0	87,959
2016	87,959	4,339	4,140	414	3,726	8	83,198
2017	83,198	4,067	4,020	402	3,618	5	78,724
2018	78,724	3,865	1,780	178	1,602	100	74,581
2019	74,581	3,729	3,694	369	3,325	0	67,158
Total	N/A	45,524	20,684	2,068	18,616	113	N/A

6.5.4.2 Area 3

As indicated in Table 18, trap tag purchases for Area 3 also show declines of 62 percent to 73 percent from 2000-2007 for Massachusetts and Rhode Island, respectively. These declines were largely driven by the implementation of a Federal limited access program for LCMA 3 (68 FR 14902, March 27, 2003), combined with the Most Restrictive rule. Consequently, the numbers for the latter part of that time series, from 2004-2007, likely provide a more accurate reflection of actual fishing effort; a conclusion supported by the relatively strong correlation between the number of vessels electing Area 3 and the number of vessels purchasing trap tags, as well as the number of trap tags authorized and the number of trap tags purchased. Disregarding the incomplete trap tag data from 2013 and 2014 (due largely to a change in the trap tag vendor), and given the onset of trap transferability, we see an increase in the number of Area 3 trap tags purchased from 2015-2017, back to levels seen in 2011 (Table 18). This increase could represent a slight uptick in actual fishing effort as trap allocations are transferred and consolidated. Additionally, the delay in implementing the Addendum XXII trap caps for Area 3 may have allowed the activation of trap effort as permit holders acquired trap allocation to build up to, or maintain, their allocations up to the Federal 1,945 trap limit through transferability. The increase in active vessels in both areas may allude to more active effort, but in this case, active permits refers to permits that have been renewed for the year and are thus eligible to acquire tags.

In Area 3, the recent suite of trap reductions which concluded on May 1, 2020, combined with the conservation tax assessed on trap transfers, will have reduced overall potential effort by about 25 percent. These reductions follow an approximate 20 percent reduction that took place over a four year period from 2006 – 2010, subsequent to the Area 3 qualification and allocation process. There were approximately 145,000 traps authorized to 136 Federal Area 3 permit holders for 2015, compared to the initial 172,600 traps allocated to Area 3 permit holders when NMFS completed the trap allocation program for Area 3 in 2006. This latest round of trap cuts and conservation tax are expected to bring the 2020 overall Area 3 aggregate allocation to fewer than 110,000 traps.

Table 23. Breakdown of Area 3 Permits Based on Permit Renewal and Reported Landings, 2018-2018

Total Federal Area 3 Permits and Maximum Allocated Traps			Active Federal Area 3 Permits and Allocation			Active Federal Area 3 Vessels Landing Lobster, Total Trips, Reported Landings			
YEAR	VESSELS	TOTAL TRAPS	YEAR	VESSELS	PERMITTED_TRAPS	YEAR	VESSELS	TRIPS	LOBSTER_LB
2014	136	145,433	2014	94	117,096	2014	68	1,721	7,366,337
2015	136	145,433	2015	97	120,985	2015	63	1,573	7,266,323
2016	132	136,868	2016	95	115,582	2016	61	1,540	7,777,111
2017	131	128,910	2017	94	115,737	2017	62	1,568	8,763,931
2018	130	121,806	2018	90	110,984	2018	62	1,503	8,636,370

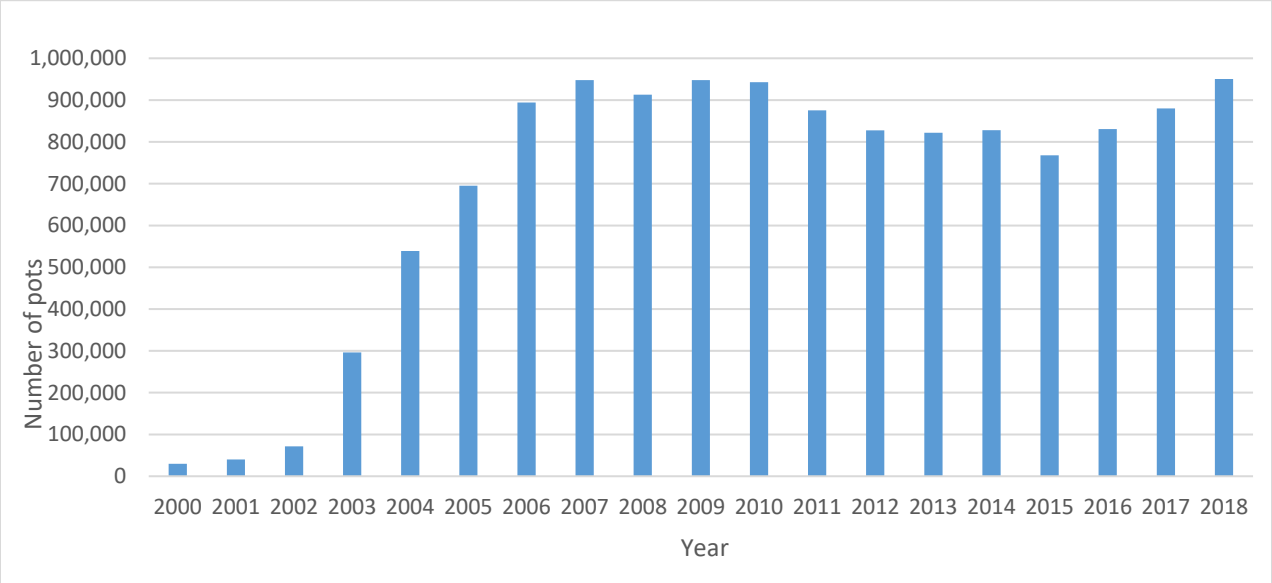
About 3,500 traps were permanently retired from the Area 3 fishery due to conservation taxes assessed on the first three years of the Trap Transfer Program, as of May 1, 2018 (Table 23), and we expect that figure to rise through the final stage of trap reductions. Although the trap reductions and conservation tax have and will continue to reduce latent effort and scale down the size of the fishery, permit caps that reduce permit-based allocations, as considered in this action, over time would more effectively reduce actual fishing effort. We believe that although overall Area 3 traps have declined and will continue to do so due to conservation taxes and proposed reductions to the trap cap, there is speculation that active effort has increased due to transferability and consolidation. We see that despite annual trap reductions, the number of trap tags purchased has increased slightly since 2015, from just over 98,000 Area 3 tags, to over 104,000. This is supported by the data in Table 23 that shows the number of Area 3 vessels landing lobster and the number of trips have remained relatively consistent since 2015, with a slight increase in landings noted. A healthy fishery offshore has fostered consolidation of trap allocations and has likely resulted in more traps in the water, if one considers the increase in Area 3 trap tags purchased as a proxy. Scheduled reductions in the individual and aggregate trap caps for Area 3 permits may effectively curb this activation of effort and reduce it over time. Overall, in Area 3, the number of active traps and permits, based on vessels who have renewed their annual permit, have decreased. The number of Area 3 lobster vessels that landed lobster between 2015-2018, as well as trips and landings, have remained relatively constant. The number of Area 3 vessels purchasing trap tags and the number of tags purchased overall have increased between 2015-2017, but tag purchases are still lower than prior to transferability.

Table 24. Summary of Area 3 Trap Transfers, Annual Reductions, and Conservation Tax, 2015-2019

Application Year	Total Trap Allocation	Annual Trap Reductions	Number of Traps Transferred Out	10% Tax on Trap Transfers	Number of Traps Transferred In	Trap Loss from Cap Limits, Renew or Lose, or Leveling	Balance at the Start of Next Fishing Year
2015	145,433	7,201	13,612	1,363	12,249	1	136,868
2016	136,868	6,779	11,650	1,165	10,485	14	128,910
2017	128,910	6,391	7,130	713	6,417	0	121,806
2018	121,806	6,036	2,820	282	2,538	9	115,479
2019	115,479	5,774	4,060	406	3,654	0	105,645
Total	N/A	32,181	39,272	3,929	35,343	24	N/A

Despite the five-percent annual trap reductions to all Area 3 allocations, as well as the reduction in traps due to the conservation tax on all trap transfers, the number of traps reported fished in Figure 28 has shown a positive trend since 2016, when the Trap Transfer Program took effect. For the purposes of this analysis, and to avoid bias due to changes in fishing practices and seasonality on a monthly basis, the table below takes the maximum number of traps reported fished from each reporting permit holder and adds them together by month. Then, those monthly tallies are added together for an annual estimate. By dividing by 12 months, we can get an idea of the actual number of traps actively fished. A relatively stable number of traps was reported fished between 2006 and 2011. Fishing years 2012 through 2015 saw a decreasing trend in traps fished. However, the figure displays an increase in the overall number of reported active traps fished since 2015, despite the overall reduction in Area 3 cumulative allocation. It also represents a higher percentage of active effort overall in the fishery.

Figure 27. Sum of Monthly Maximum Number of Reported Area 3 Traps Fished, 2000-2018



Note: This graphic does not show numbers of traps fished. It shows the highest number of traps fished by month for all permit holders and adds them together, and then all months are added together to get an annual index. By dividing by twelve for each year, we can get an estimate of the average annual number of reported traps fished. Source: Greater Atlantic Region Fisheries Office (GARFO) Vessel Trip Report Database.

A few additional caveats should be noted on this analysis. VTRs are not mandatory for the Area 3 fleet, as discussed in greater detail in Section 6.1.5, VTRs are collected from approximately 80 percent of active vessels. While not a complete picture, this data may indicate that some latent traps are being activated into the fishery as a result of trap transfers and trap reductions. Second, this analysis was not limited to Area 3 permit holders, but rather traps reported fished in Area 3 based on the latitude and longitude reported fished on the VTR. Therefore, Area 2 traps reported fished in the Area 2/3 overlap, Area 5 traps fished in the Area 3/5 overlap, and VTRs with erroneous latitude/longitude would be included in this analysis, which may slightly skew the results. Finally, it should be noted that traps fished were analyzed for the entire management area. Given the large geographical space that Area 3 encompasses, strong regional trends may influence this analysis, and trends may not be representative of fishing operations in the entire management area.

Together, data indicates that number of active vessels and traps allocated to the fishery have decreased, but some latent traps may be activing as a result of transferability and trap reductions.

6.1.5 Harvester Reporting Landscape

As discussed in Section 4.5, mandatory harvester reporting has not been a requirement of the Federal lobster regulations. However, by virtue of having permits for multiple fisheries, some lobster harvesters must complete VTRs. Table 25 summarizes the number of vessels, by lobster management area, currently subject to a VTR requirement and those that do not currently report. Using fishing year 2018 Federal fishery permit data, 1,622 Federal lobster permits (including both active permits and those permits in Confirmation of Permit History status (CPH)) would be required to submit a Federal Vessel Trip Report (VTR) if activated because they hold another Federal fishery permit, in addition to the Federal lobster permit, that requires submission of a VTR. These permit holders must submit a VTR for every trip, including a separate VTR for each new statistical area/gear combination that the vessel fishes during the trip. Captains must report all species caught (including kept and discarded fish) on the trip, including American lobster, regardless of the target species. The VTR system is a two-ticket system wherein VTR landings data reported by the captain are matched up with Federal dealer reports on what was purchased from the vessel.

Table 25. Federal Lobster Permits VTR Reporting by Area, 2018

Lobster Management Area	VTR Required Active	VTR Required CPH	TOTAL VTR Required	VTR Not Required Active	VTR Not Required CPH	TOTAL VTR Not Required	GRAND TOTAL
A1	337	40	377	1,252	19	1,271	1,648
A2	103	6	109	68	17	85	194
A3	90	5	95	23	12	35	130
A4	62	5	67	6	4	10	77
A5	36	1	37	1	1	2	39
A6	35	NA	35	6	NA	6	41
Outer Cape Cod	11	2	13	5	0	5	18
Non-trap	805	296	1,101	28	45	73	1,174
Total Distinct Permits	**1,269**	**353**	**1,622**	**1,341**	**93**	**1,434**	**3,056**
Total Permits	**1,479**	**355**	**1,834**	**1,389**	**98**	**1,487**	**3,321**

Currently, fishermen with a Federal lobster permit and no other Federal limited access permits (approximately 50% of all Federal lobster permit holders, or 1,500 permits) are not required to submit a VTR or any other form of catch accounting to NMFS. Under the current scenario, 1,434 federally-permitted lobster vessels out of the total of 3,056 Federal lobster permits in 2018, are not required to report to NMFS. Of those Federal lobster permit holders that do not have a reporting requirement, the vast majority hail from Maine ports and not subject to any state reporting requirements. Area 1, the area responsible for the highest percentage of coastwide lobster landings, has the lowest percentage by area (23 percent) of Federal permit holders that must submit a VTR. The majority of these permit holders hail from Maine ports and are not currently required to report to the state. Therefore, the current reporting requirement is not geographically representative of the entire Federal lobster fishery. The majority of permit holders subject to the VTR requirements fish predominantly on Georges Bank and in southern New England waters, with strong representation from ports in Massachusetts and to the southwest. Federal permit holders without Federal reporting requirements hailing from other states are subject to state reporting requirements at the trip level, therefore the majority of Federal lobster permit holders fishing on Georges Bank and in Southern New England are currently subject to reporting requirements.

Table 26 summarizes reporting and reporting deficiencies by state. Because the state of Maine requires only 10 percent of its licensees to report trip-level landings reports, we expect that most of these vessels currently do not report to either their state or NMFS.

Table 26. Federal Lobster Permits VTR Reporting by State, 2018

STATE	VTR Required Active	VTR Required CPH	TOTAL VTR Required	VTR Not Required Active	VTR Not Required CPH	TOTAL VTR Not Required	GRAND TOTAL
ME	189	65	254	1,120	15	**1,135**	1,389
NH	80	23	103	18	2	20	123
MA	510	197	707	153	36	**189**	896
RI	144	17	161	38	25	63	224
CT	22	7	29	6	3	9	38
NY	74	14	88	2	5	7	95
NJ	170	18	188	2	4	6	194
DE	5	1	6	0	1	1	7
MD	8	0	8	0	0	0	8
VA	46	4	50	0	0	0	50
NC	25	3	28	0	1	1	29
OTHER	0	1	1	0	2	2	3
Total	**1,273**	**350**	**1,623**	**1,339**	**94**	**1,433**	**3,056**

The lack of continuous reporting for all permit holders has created a data void centered on the Gulf of Maine and Area 1, as well as into offshore Area 3, where 27 percent of permit holders do not submit a VTR. This geographic data gap has proved problematic for stock assessment scientists and managers, which has hampered efforts to document effort on a spatial level. This issue was raised in the Commission's 2015 American Lobster Stock Assessment and Peer Review Report (ASMFC, 2015) which noted the difficulty in assessing the effects of effort controls on lobster stock status. Although scientists can compile data on total number of traps fished by management or stock area, trap hauls, not total traps, is the most sensitive indicator or effort in the fishery.

6.1.6 Social Environment

The social environment discussion examines the social and cultural setting of the communities potentially affected by the proposed SNE and reporting management measures. Potentially affected communities were identified by first looking at the distribution of lobster fishermen (trap vessels) across the relevant states and management areas, then identifying the towns in which those lobster license holders reside and, finally, identifying the counties in which those towns are located. Within each county, social and cultural characteristics of the towns with the strongest participation in the lobster fishery were used as a proxy for the county as a whole. Social parameters considered include regional and local demographic attributes of the fishing communities identified, (e.g., age, income, education); and cultural parameters such as institutions that support the attitudes, beliefs and values of fishery related workers and the communities in which they work.

Social and Cultural Setting

Describing the social and cultural setting of the fishing communities potentially affected by the proposed lobster management measures necessarily requires some subjective analysis because the existing social science research focusing on these issues is either incomplete or unavailable. Where practicable, this analysis has been combined with objective data. It should be noted, however, that many of the standard demographic measures (e.g., median age, types of employment, race) mask what are arguably the most salient attributes of the potentially affected lobster fishing community from a social standpoint, attributes for which little or no hard data exists. Nonetheless, some standard measures are presented herein so as to provide information regarding these communities as they relate to each other and to the states in which they reside. Keeping these limitations in mind, some important examples of what U.S. Census statistics do not reveal about the potentially affected communities are as follows:

- **Current lobster license holders are, in general, an older population:** Available social science research, while not limited to the communities identified here, has shown that the lobster fishermen are overall an older population, with many license holders curtailing their time "on the water" and considering themselves near retirement. U.S. Census Bureau median-age statistics do not capture this information.
- **The importance of commercial lobster fishing (and commercial fishing overall) to the social environment is under-represented in the available data**: Employment statistics hide the level of commercial fishing within a statistical area (e.g., state, town, county) under broad headings, such as "self-employed" or "agriculture, forestry, fishing and hunting, and mining."
- **Commercial lobster fishing plays a key role in the current social environment of many of the affected fishing communities:** Intuitively, one might argue that a sound economic base has an important influence on the social well-being of a community. For many of the towns identified with the most active commercial lobster industry, lobster ranks among the top-three in value of commercial landings relative to other fisheries, suggesting that this commercial fishery has a high relative importance to the current local economic and social well-being of those communities.
- **"Gentrification" within many existing fishing port communities along the east coast of the United States competes with the commercial fishing industry for needed real estate and infrastructure:** Seaport towns are considered prime real estate for residential and tourist development, which often compete against the commercial fishing industry's need for mooring space and land-based infrastructure.

For this analysis, the city or town within each of the counties identified above that has the strongest participation in the lobster fishery (i.e., with the greatest number of permit holders) has been used as a proxy to represent the county as a whole and each one is evaluated for certain social and cultural characteristics. These characteristics include demographics (population, median age, education, ethnic origin) and cultural attributes (such as the regular occurrence of community events and attractions that celebrate the historic presence of the local fishing industry; social/cultural organizations that help to provide social support and services to the affected fishing communities; and gentrification, meaning that pressure within the town to convert port areas traditionally dedicated to fishing to another competing use, such as residential development, has been noted).[19] Demographic information comes from the U.S. Census Bureau.

Figure 28. State & County Social/Cultural Data

State	County	Population (2020)	Median Household Income (2015-2019)	Persons below Poverty Level (2015-2019)	Persons under 18	Persons over 65	White, non-Hispanic/ Latinx	High School Degree or Higher	Bachelor's Degree or Higher
ME	Washington	31,095	$41,347	18.30%	18.9%	24.8%	89.3%	89.3%	22.0%
ME	Hancock	55,478	$57,178	11.60%	17.0%	25.3%	94.5%	94.1%	34.1%
ME	Waldo	39,607	$51,931	13.70%	18.2%	23.3%	95.3%	92.2%	31.4%
ME	Knox	40,607	$57,751	10.2%	17.6%	26.0%	95.0%	93.6%	33.5%
ME	Lincoln	35,237	$57,720	8.8%	16.8%	28.2%	95.7%	93.1%	33.5%
ME	Sagadahoc	36,699	$63,694	9.2%	19.0%	22.8%	94.4%	94.0%	36.4%
ME	Cumberland	303,069	$73,072	8.6%	18.3%	19.0%	90.1%	95.1%	47.6%
ME	York	211,972	$67,830	8.1%	18.4%	21.2%	93.9%	93.2%	32.5%
NH	Rockingham	314,176	$93,756	4.6%	19.1%	18.6%	92.2%	95.1%	41.4%
MA	Essex	809,829	$79,263	9.0%	21.1%	17.6%	69.0%	89.3%	39.9%
MA	Suffolk	797,936	$69,669	16.5%	16.4%	12.3%	45.2%	86.3%	46.1%
MA	Norfolk	725,981	$103,291	5.9%	20.7%	17.2%	73.8%	93.9%	53.6%
MA	Plymouth	530,819	$89,489	7.2%%	21.2%	18.6%	81.1%	92.9%	37.6%
MA	Barnstable	228,996	$74,336	7.7%	14.8%	31.4%	89.5%	95.5%	43.4%
MA	Bristol	579,200	$69,095	10.1%%	20.25%	17.3%	81.8%	85.7%	28.7%
RI	Newport	25,163	$67,102	14.5%	14.1%	18.4%	77.2%	94.1%	52.8%
RI	Washington	129,839	$85,531	7.8%	16.2%	21.5%	90.8%	94.9%	46.1%
CT	New London	274,055	$73,490	8.0%	19.2%	18.8%	75.1%	92.3%	33.3%
NY	Kings	2,736,074	$60,231	17.8%	22.7%	14.4%	36.1%	82.4%	37.5%
NY	Nassau	1,395,774	$116,100	5.7%	21.4%	18.2%	58.5%	91.4%	46.0%
NY	New York	1,694,251	$86,553	16.3%	14.3%	17.0%	47.2%	87.3%	61.3%
NY	Suffolk	1,525,920	$101,031	6.1%	20.9%	17.3%	66.6%	90.6%	36.3%
NJ	Atlantic	274,534	$62,110	13.8%	21.1%	18.6%	56.0%	87.0%	28.1%
NJ	Cape May	95,263	$67,074	9.6%	17.3%	27.3%	85.0%	92.5%	32.8%
NJ	Monmouth	643,615	$99,733	5.9%	20.9	18.2%	75.1%	93.4%	46.0%
NJ	Ocean	637,229	$70,909	10.5%	24.2%	22.8%	84.3%	92.0%	30.0%
MD	Worcester	52,460	$63,499	11.7%	17.0%	28.2%	80.0%	91.3%	29.0%
DE	Sussex	237,378	$63,162	11.0%	18.0%	28.7%	75.4%	88.1%	28.2%
VA	Accomack	33,413	$46,073	17.6%	20.7%	24.6%	59.9%	81.5%	19.5%

[19] See "Guidelines for Assessment of the Social Impact of Fishery Management Actions," (NMFS 2002b).

State	County	Population (2020)	Median Household Income (2015-2019)	Persons below Poverty Level (2015-2019)	Persons under 18	Persons over 65	White, non-Hispanic/ Latinx	High School Degree or Higher	Bachelor's Degree or Higher
VA	Gloucester	38,711	$70,537	7.9%	19.9%	19.6%	84.7%	89.6%	23.3%
VA	Hampton	137,148	$56,287	13.4%	20.9%	15.7%	37.4%	91.4%	26.9%
VA	Norfolk	238,005	$51,590	17.6%	19.4%	11.6%	43.3%	88.0%	28.8%
VA	Virginia Beach	459,470	$76,610	7.3%	22.3%	13.7%	61.7%	93.5%	36.0%
VA	Warwick	186,247	$53,215	14.5%	23.1%	13.3%	42.3%	91.0%	26.3%

Source: US Census Quick Facts

6.2 Target Species (American Lobster)

6.2.1 Biological Characteristics

The information contained in this section is a summary of the life history and reproductive success of the American lobster. For a more extensive review of the status of American lobster, see the Commission Stock Assessment Report dated August 2015 (ASMFC 2015) located at the Commission's website at www.asmfc.org.

The American lobster is a long-lived species known to reach more than 40 pounds (18 kg) in body weight (Wolff 1978). The American lobster is a bottom-dwelling, marine crustacean characterized by a shrimp-like body and ten legs, two of which are enlarged to serve as crushing and gripping appendages. Lobsters are encased in a hard external skeleton that provides body support and protection. Periodically, this skeleton is cast off to allow body size to increase and mating to take place. Lobster growth and reproduction are linked to the molting cycle. The age of lobsters is unknown because all hard parts are shed and replaced at molting, leaving no accreting material for age determinations. Traditionally, scientists estimate the age of lobsters based on size, per-molt growth increments and molt frequencies. Based on this kind of information, Cooper and Uzmann (1980) estimated that the American lobster may live to be 100 years old.

Information from European lobster, *H. gammarus* (Addison 1999), indicated a large variation in age at size with seven year classes making up the 85-95 mm size class. Research on aging of lobsters using lipofusion was conducted in the UK on measurements from the eyestalk ganglia (Sheehy and Bannister 2002). Molting was so erratic and protracted that European lobster between 70 and 80 mm carapace length (CL) required at least five years to fully-recruit to legal size (81 mm) in the trap fishery off the UK (Sheehy et al. 1996). These researchers have concluded that changes in lobster body length explained less than 5 percent of the variation in true age in European lobster. Predicted sizes at age were significantly below those estimated from tagging studies, and large animals approached 54 years in age using lipofusion data.

Water temperatures exert significant influence on reproductive and developmental processes of lobster. Huntsman (1923, 1924) found that larvae hatched in water less than 15° C developed much more slowly than those hatched in warmer water. Size at maturity is related to summer water temperatures, e.g., high temperatures enhance maturation at small sizes, and the frequency of molting increases with water temperature (Aiken 1977). Within the range of lobster, water temperatures tend to increase from north to south and tend to range higher inshore than offshore. However, the size increase per molt was shown to be smaller in blue crabs raised in warmer waters (Leffler 1972); and adult lobsters exhibited a smaller size increase per molt in warmer areas (NUSCO 1999) compared to those measured in the U.S. offshore

waters (Uzmann et al. 1977, Fogarty and Idoine 1988). Early maturity occurs in relatively warm water locations in the Gulf of St. Lawrence and inshore southern New England, while in the deeper offshore waters off the northeastern U.S. and in the Bay of Fundy, maturation occurs at larger sizes (Krouse 1973; Aiken and Waddy 1980; Van Engel 1980; Campbell and Robinson 1983; Fogarty and Idoine 1988; Estrella and McKiernan 1989).

Lobsters typically form a brief pair bond for mating. Female lobsters can mate at any molt stage, but their receptivity peaks immediately after molting (Dunham and Skinner-Jabobs 1978; Waddy and Aiken 1990). Mating takes place within 24 hours of molting and usually within 30 minutes (Talbot and Helluy 1995). Eggs (7,000 to 80,000) are extruded and carried under the female's abdomen during the 9 to 12 month incubation period. Hatching and release of larvae occur while eggs are still attached to the female (Talbot and Helluy 1995). Seasonal timing of egg extrusion and larval hatching is somewhat variable among areas and may also vary due to seasonal weather patterns. Overall, hatching tends to occur over a four-month period from May through September, occurring earlier and over a longer period in the southern part of the range.

Smaller lobsters molt more often than larger ones; however, larger females (>120 mm carapace length) can spawn twice between molts, making their relative fecundity greater than females within one molt of legal size (Waddy et al. 1995). Larger lobsters produce eggs with greater energy content and thus, may produce larvae with higher survival rates (Attard and Hudon 1987). Once the eggs mature, prelarvae are released by the female over the course of several days. For the first three molt stages (15-30 days), larvae remain planktonic. During settlement, fourth stage post larvae exhibit strong habitat selection behavior and seek small shelter-providing substrates, with the greatest abundance of newly settled lobsters occurring in cobble beds (Wahle and Steneck 1991; Cobb and Wahle 1994; Palma et al. 1999).

During their first year on the sea bottom, lobsters move little and can be found within a meter of where they settled (Wahle 1992; Palma et al. 1999). They do not usually emerge from their shelters until reaching about 25 mm CL (Wahle 1992; Cobb and Wahle 1994). As they grow, their daily and annual ranges of movement increase. Adolescent phase lobsters are found on a variety of bottom types, usually characterized by an abundance of potential shelters. By the time lobsters reach sexual maturity, the annual range of lobster averages just over 20 miles (32 km) (Campbell and Stacko 1985; Campbell 1986). In general, mature legal lobsters are more abundant offshore and in deeper water (Harding and Trites 1989). For the offshore trap fishery, the deep-water canyons contain habitat with an abundance of favorable potential shelters. Clay and mud allow lobsters to excavate burrows up to 1.5 meters long with bowl-like depressions that may shelter several lobsters at a time. However, while gravel and rocky habitat provide ready-made shelters, large sexually mature lobsters are capable of traversing great distances and show at least three different migration behaviors: those that do not migrate; those who migrate seasonally; and those who migrate long distances. Fogarty (1998) calculated that even a modest amount of offshore larvae supplied by larger sexually mature lobsters could add significantly to the resiliency of inshore areas.

Several studies have shown that lobster growth rates decline as food availability and quality decline (Castell and Budson 1974; Bordner and Conklin 1981; Capuzzo and Lancaster 1979). In laboratory studies, greater densities of lobster as well as limited space reduce growth rates (Stewart and Squires 1968; Hughes et al. 1972; Aiken and Waddy 1978; Van Olst et al. 1980; Ennis 1991). Growth rates of smaller lobster seem to be slower when they are in the presence of larger lobster (Cobb and Tamm 1974, 1975). All of these variables have been shown to influence the frequency of molting and/or the length of the molt increments.

The adult American lobster is the largest mobile benthic invertebrate in the North Atlantic. Estrella and Morrissey (1997) reference multiple tagging studies in the offshore (Saila and Flowers, 1968; Cooper and Uzmann, 1971, 1980; Uzmann et. al. 1977; Fogarty et al, 1980; Campbell et al, 1984) and southern nearshore (Morrissey, 1971; Briggs and Muschacke, 1984) areas supporting the movement of large, sexually mature lobster from offshore to inshore areas with the potential for individual lobster from different stocks becoming intermixed. A tagging study in the Outer Cape Area (Estrella and Morrissey, 1997) indicated that lobster recaptured within 200 days of tagging were capable of traveling a notable distance from the point of release. Larger, legal-sized, egg-bearing lobsters were found to travel greater distances (an average of about 26 km) than sublegal individuals (Estrella and Morrissey, 1997).

Estrella and Morrissey (1997) also reference the research of Cooper and Uzmann (1971) and Uzmann et al. (1977) indicating that tagged lobster were observed to move to deep canyon areas in late fall and winter, migrating back to shoaler water in spring and summer. The recapture patterns in these experiments represent movement from Georges Bank and deepwater canyons to the south to areas east of Cape Cod. Estrella and Morrissey (1997) found in their tagging work that tagged lobster exhibited a northerly and westerly movement pattern along the eastern shore of Cape Cod, consistent with the findings of Morrissey (1971) where movements from Eastern Cape Cod into Cape Cod Bay were observed. These studies support the movement and mixing of inshore and offshore lobster stocks. Consequently, this supports the theory that lobster move between stock areas and management areas.

The relatively large size of the American lobster in its niche and large claws make it an important predator. Adult lobsters are omnivorous, feeding largely on crabs, molluscs, polychaetes, sea urchins, and sea stars (Ennis 1973; Carter and Steele 1982; Weiss 1970). Live fish and macroalgae are also part of the natural diet. Lobsters are opportunistic feeders, so their diet varies regionally. In areas where lobster traps are numerous, bait in lobster traps are a substitute for the normal diet but are known to be nutritionally deficient in comparison. Lobster larvae and postlarvae eat zooplankton during their first year (Lavalli 1988). Copepods and decapod larvae are common prey items, but cladocerans, fish eggs, nematodes, and diatoms have been noted.

6.2.2 Factors Affecting Survival

The natural mortality rate in post settlement lobster is generally considered to be low because they are a long-lived species that produce fairly small egg clutches, carry their eggs for months until they hatch, and are not very vulnerable to predation, especially as they become larger. A low and stable natural mortality rate seems less certain for inshore lobster stocks south of Cape Cod (ASMFC 2006a). The dominant source of natural mortality includes predation, disease, and extreme environmental conditions. Predation pressures seem related to size and habitat. The presence of shelter greatly reduces predation mortality (Cobb et al., 1986; Richards, 1992). Mortality due to predation decreases as the lobster grows (Wahle 1992). The effects of disease can be as profound as predation or exploitation (Anderson and Hart, 1979; Hart 1990). A number of animals parasitize lobsters, including protozoa, helmintha, and copepods. Aiken and Waddy (1986) and Sherburne and Bean (1991) reported a cyclical infestation of the ciliate Mugardia spp. in lobsters. Eggs are subject to high mortality rates by a nemertean worm, Pseudocarcinonemertes homari. A well-known disease that leads to the development of gaffkemia, a fatal infection (Stewart 1980), is caused by the bacteria Aerococcus viridans.

External bacteria that digest the minerals in a lobster's shell cause shell disease. Shell disease is believed to be the result of opportunistic bacteria exploiting an injury or poor physiological state of the lobster (Getchell 1989). Ovigerous female lobsters display the highest rate of infection and carapace damage because they molt less frequently and therefore, have older shells. There has been a recent increase in the incidence of shell disease in the southern New England area. The consequences of shell disease on

natural mortality are not known. The recent increase in shell disease may also be an indication of stresses in the lobster populations. Laboratory studies have shown that lobster with shell disease can heal themselves by molting out of the diseased shell and replacing it with a new healthy one. However, if the disease-causing bacteria become thick enough to penetrate completely through a lobster's shell, internal lesions lead to a compromised immune system or death. Ecdysone, a hormone that controls the molting process in lobster, has been found at levels well above normal in shell-diseased lobster, indicating that severe cases of the disease may interfere with normal molting and result in early molting (Biggers and Laufer, 2004). Since the disease is most prevalent in egg-bearing females, early molting may cause declines in reproduction.

Lobster are preyed upon by a variety of bottom inhabiting species, including teleost fish, sharks, rays, skates, octopuses, and crabs (Phillips and Sastry, 1980). Larvae are subject to predation in the water column, and postlarvae are vulnerable to mud crabs, cunner, and an array of other bottom-feeding finfish species after settlement. However, once postlarvae are established in shelter, they are thought to be relatively safe from fish predators (Wahle and Steneck 1992) but not necessarily invertebrates, such as burrowing crabs (Lavalli and Barshaw 1986). Mud crabs are abundant throughout the northeast as are green crabs and rock crabs, which are also suspected predators on post-larvae. When not in their burrows, the foraging early benthic phase and larger juvenile lobsters are prey to sculpin, cunner, tautog, black sea bass, and sea raven (Cooper and Uzmann 1980). Atlantic cod, wolffish, monkfish, tilefish, and several species of shark consume lobsters up to 100 mm CL (Cooper and Uzmann 1977; Herrick 1909). Substantial predation of sublegal lobster by striped bass has also been reported. While settling lobsters suffer extraordinarily high predation rates, and pre-recruits and fully recruited lobsters are subject to predation when foraging, larger lobsters (>100 mm CL) may be immune to predation.

Lobsters and crabs compete for space and food (Richards et al., 1983; Cobb et al., 1986; Richards and Cobb, 1986), though evidence also indicates that rock crabs are a significant food source for the condition, growth and reproduction of lobsters (Gendron, et al 2001). These studies show competition between lobsters and crabs caused a redistribution of individuals. Lobsters that lost space to their competitors also showed an increased mortality. Intra-specific competition among lobsters is well known (O'Neill and Cobb, 1979). Large body size and claw size are particularly important in determining competitive dominance among lobsters selecting shelters. When local population densities increase, larger lobsters diffuse to habitats where total population densities are lower (Steneck 1989; Lawton and Lavalli 1995). Mortalities that result from aggression between lobsters may not represent predation but do represent an additional source of natural mortality.

The effects of climate change and other environmental factors on lobster sustainability are being more closely linked. NOAA's Northeast Fish and Shellfish Climate Vulnerability Assessment assessed the following:

Table 27. Climate Vulnerability Assessment for American Lobster

Factor	Rank
Overall Vulnerability Rank	Moderate
Biological Sensitivity	Moderate
Distributional Vulnerability Rank	High
Climate Exposure	High

The assessment yielded the following findings on climate effects on abundance and distribution:

> "Recent warming has been linked to population decreases in the southern portion of the Northeast U.S. Shelf (Wahle et al., 2015) and population increases in the northern portion (Mills et al., 2012).

Similar regional patterns were observed during a system-wide warming event in the 1950s (Taylor et al., 1957). Experimental work indicates negative physiological effects at summer temperatures now common in the southern part of the range (Dove et al., 2005). Juvenile shell growth increased under lower aragonite saturation state suggesting positive effects of ocean acidification (Ries et al., 2009). However, larval growth decreased and development times increased under lower pH conditions (Keppel et al., 2012)."

Therefore, warming waters in southern New England are a likely contributor to the downward trend in the lobster population and ultimate recruitment failure. The Gulf of Maine is also experiencing substantial temperature increases that have helped to boost lobster abundance over the past two decades. While the warming has had a negative impact on the southern stock, it has warmed the Gulf of Maine to an optimal temperature for lobsters. That warming, along with decades of broodstock protection measures such as v-notching of egg-bearing females and a maximum carapace length, have allowed the stock to increase substantially over the past two decades. Now, with continued warming, scientists are concerned that distribution of lobster biomass in the Gulf of Maine will continue to shift to the north and east, resulting in a potential downturn in lobster abundance that could cause a reduction in landings in the coming years. Larval surveys have shown that despite increased egg production due to optimal conditions, there is a decrease in the number of juvenile lobsters settling on the bottom, a phenomenon that could result in poor recruitment into the fishery in a few years leading to a potential downturn in landings (ASMFC 2016).

6.2.3 Stock Status

The most recent peer-reviewed stock assessment for American lobster, approved by the ASMFC in October 2020, identifies two biological stock units, delineated primarily on the basis of regional differences in life history parameters, such as lobster distribution and abundance, patterns of migration, location of spawners, and the dispersal and transport of larvae. These stock units are the Gulf of Maine/Georges Bank (GOM/GBK stock) and Southern New England (SNE stock). Trawl survey evidence of seasonal migrations of large female lobsters from GBK to the GOM in the spring and back to GBK in the fall led researchers to believe that the GBK stock is not a distinct closed stock and may be part of the GOM stock unit. Researchers decided to combine GBK and GOM stocks in the previous 2015 assessment model, which allowed for a more effective estimate of recruitment size and seasonal trends in the location of large females (ASMFC, 2015). For management and assessment purposes, the GOM/GBK stocks are considered a single stock unit.

The U.S. lobster fishery is conducted in both of the stock units – GOM/GBK and SNE. While each area has an inshore and offshore component to the fishery, GOM and SNE areas are predominantly inshore fisheries and the GBK area is predominantly an offshore fishery. The GOM/GBK stock is primarily fished by fishermen from the states of Maine, Massachusetts, and New Hampshire. The SNE stock is primarily fished by fishermen from the states of Massachusetts, Rhode Island, and New Jersey, with smaller contributions from the states of Connecticut, New York, Delaware and Maryland.

Of the formerly three stock areas, GOM supported the largest fishery, accounting for 81 percent of the U.S. landings from 1981 to 2018, 87 percent since 2002, 90 percent of landings since 2009, and 94 percent of landings since 2014. Landings in the GOM were stable between 1981 and 1989, averaging 14,600 mt, then increased dramatically from 1990 (19,200 mt) to 2013 (64,000 mt). Landings averaged 51,000 mt from 2008-2013 and since 2014, total GOM landings have averaged 63,016 mt.

GBK constituted the smallest portion of the U.S. fishery, averaging 5 percent of the landings from 1981 to 2007 and 4 percent of landings since 2014. From 1981-2002, landings from the GBK fishery remained stable (averaging 1,300 mt). Landings nearly doubled from 2003-2007, and averaged about 2,200 mt

from 2005-2013, and reached a time series high of 2,039 mt in 2018. The greatest percentage of overall landings (98%) comes from the combined GOM/GBK stock.

Prior to 2011, SNE had the second largest fishery, accounting for 19 percent of the U.S. landings between 1981 and 2007, but has since become the smallest component of the fishery, accounting for about 9 percent of landings since 2002, and 2 percent of landings since 2013. Landings increased sharply from the early 1980s to the late 1990s, reaching a time series high of 9,900 mt in 1997. Landings remained near the time series high until 1999, when the fishery experienced dramatic declines in landings. From 2000 to 2007, landings from the SNE accounted for only 9 percent of the U.S. total for American lobster, and continued to drop to an all-time low of 1,243 mt in 2018.

The ASMFC's 2020 American Lobster Stock Assessment was based on the University of Maine catch-at-age model which estimated abundance and mortality levels by sex and size for each stock unit. This model is similar to the one used in the last two assessments, completed in 2009 and 2015. In 2015, the model was updated to determine sex-specific size ratios for new recruits, allow for non-linear surveys, and estimate growth transition matrices from trap tag data. In 2020, the assessment was update to include the identification and characterization of environmental/climatic drivers and included updates to reference abundance points which incorporates changes in environmental regimes. The model also provides trends for stock status indicators including mortality, abundance, and fishery performance, presented in a traffic light approach (ASMFC, 2020).

The stock assessment evaluated the status of the American lobster fishery in terms of stock abundance, fishing mortality, and fishery performance (i.e., fishing effort, as measured by number of traps, landings, mean length of catch, and gross catch per unit effort (CPUE), measuring these parameters against recommended reference points. For the GOM/GBK stock, three abundance reference points were included: The Fishery/Industry Target, to assess the stock condition from an economics perspective and two, the Abundance Limit and Abundance Threshold, to assess the status of the stock from a biological perspective. For the SNE stock, only the Abundance Threshold is provided due to the different abundance trajectories estimated in previous and the current assessments, the difference in regimes detected from these abundance trajectories, and low likelihood of reaching even the most precautionary reference point due to documented changes in natural mortality and recruitment failure in SNE.

Based on these reference points, a stock is considered depleted if reference abundance is less than the Abundance Limit (GOMGBK only) and significantly depleted if reference abundance is less than the Abundance Threshold. Overfishing would occur if effective exploitation is greater than the 75th percentile of effective exploitation during the stock's current abundance regime. In either of these cases, corrective management action should be implemented. The results of this evaluation are summarized in Table 28.

Table 28. 2020 Stock Assessment Results for American Lobster by Stock Area[20]

Variable	Reference Point	GOM/GBK Stock	SNE Stock
Exploitation	Target	0.461	0.257
Exploitation	Threshold	0.475	0.290
Exploitation	Recent exploitation 2016-2016	0.459	0.274
Exploitation	Exploitation below threshold?	**YES**	**YES**
Abundance	Fishery/Industry Target	212	N/A
Abundance	Abundance Limit	125	N/A
Abundance	Abundance Threshold	89	25
Abundance	Recent abundance 2011-2013	256	7
Abundance	Abundance above threshold?	YES	NO

The GOM/GBK stock is in favorable condition based on the recommended reference points. The stock is well above the Abundance Threshold and below the effective exploitation threshold. *Therefore the GOMGBK lobster stock is not depleted and overfishing is not occurring.* Further, the stock is above the Fishery/Industry Target and below the effective exploitation target.

The SNE stock is in poor condition based on the recommended reference points. The stock is well below the Abundance Threshold and below the effective exploitation threshold. *Therefore the SNE lobster stock is depleted but overfishing is not occurring. The assessment recommends significant management action to provide the best chance of stabilizing or improving abundance and reproductive capacity of the SNE stock.*

6.3 Other Affected Species

6.3.1 Bycatch

The term "bycatch" refers to the unintentional landing and discarding of animals not specifically targeted by fishing vessels. Animals may be discarded for a variety of reasons, both economic and regulatory. Commonly discarded animals include those that are of an undesirable size, sex, or species. In addition to discards, fishing typically involves some degree of unobserved animal mortality associated with fishing gear (e.g., animals entangled in nets, breaking free of hooks or lines, and ghost fishing).

In general, the pots used in commercial lobster fisheries are among the more selective types of fishing gear. As a result, overall levels of bycatch in pots are low in lobster fisheries relative to other marine fisheries. The most common types of bycatch in lobster pots are juvenile lobsters and crabs, as well as some bottom fish and other invertebrates. The discard mortality rates (the percentage of discarded animals that die) associated with animals caught in traps is low, particularly when compared against the mortality rates linked with mobile fishing gears such as trawls and dredges. Several marine fish and shellfish species are incidentally caught in the directed lobster trap fishery. These species vary depending on seasons and geographic area. Size of individuals caught in lobster traps is generally limited by the circular openings in the entrance of the trap as well as the escape vent size. This section discusses, on a qualitative level, some species that are most likely expected to be caught in lobster traps. This is not meant to be an exhaustive list of all the regulated and non-regulated species that may be caught in the traps.

[20] Ibid.

The coastal lobster trap fishery in Massachusetts Bay and the Gulf of Maine is a seasonal one that directly targets lobster. Bycatch species include various species of crabs (*Cancer spp.*), and unregulated benthic finfish species such as sculpins (*Myoxocephalus spp*.), sea raven (*Hemitripterus americanus*), sea robins (*Prionotus spp*.), wrymouth eel (*Cryptacanthoides maculates*), lumpfish (*Cyclopterus lumpus*), Atlantic tomcod (*Microgadus tomcod*), and windowpane flounder (*Scopthalmus aquosus*). Regulated species such as cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius virens*), and red hake (*Urophycis chuss*) may be encountered in lobster traps. Flatfish such as yellowtail flounder (*Limanda ferrugina*), winter flounder (*Pseudopleuronectes americanus*) and American plaice (*Hippoglossiodes platessoides*) may also be encountered in the traps. Regulated species to a varying degree are sometimes harvested if the vessel has the associated permits necessary to do so, as required under 50 CFR part 648.

South of New England, the trap fishery remains directed on lobster although some vessels, with the appropriate permits, may seasonally focus their efforts on finfish such as tautog (*Tautoga onitis*), scup (*Stenotomus chrysops*) and black sea bass (*Centropristis striata*) in the coastal fisheries from Nantucket Sound south to North Carolina. Incidental catch of non-Federally regulated species such as crabs (*Cancer spp.*), four-spot flounder (*Paralychthys oblongus*), among others is likely. All vessels with a Federal lobster permit are required to comply with the lobster gear specifications set forth under the Federal lobster regulations at 50 CFR 697.21 regardless of whether lobster is the target species. Concerned with the impacts on commercial fishing enterprises from differing management systems, the Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) and the Commission requested that NMFS provide an exemption from the lobster gear requirements to black sea bass fishermen in the Mid-Atlantic area, specifically in Lobster Management Area 5. Black sea bass fishermen typically use smaller escape vents in their traps than that required by the Federal lobster regulations and may use as many as 1,500 traps, compared to the maximum lobster trap limit of 1,440 in this management area. Area 5 has historically represented less than 2 percent of total coastwide lobster landings, and these dual permit holders tend to direct their fishing on black sea bass, with lobster as a marketable bycatch. The Mid-Atlantic Council and Commission recommended further that the incidental lobster allowance that applies to non-trap lobster fishermen be applied to exempted black sea bass fishermen. In response to these recommendations and after several opportunities for public comment, NMFS published a final rule in the *Federal Register* on March 13, 2001 (66 FR 14500). This rule allows black sea bass fishermen who concurrently hold limited access lobster and limited access black sea bass permits to temporarily request to enter into the Area 5 waiver program, which allows them to participate in a directed black sea bass trap fishery in Area 5 while exempt from the lobster trap gear specifications. While in the waiver program, the vessels are limited to the non-trap lobster possession limits.

In the offshore component of the fishery, Federal lobster vessels direct their trap fishing on lobster. Some bycatch of regulated and non-regulated finfish and shellfish species is known to occur. Specifically, the regulated species mentioned above as well as Atlantic wolf fish (*Anarhicas lupus*), white hake (*Urophycis tenuis*), cusk (*Brosme brosme*), and red fish (*Sebastes fasciatus*) may also be encountered. The red crab fishery is a directed trap fishery occurring in the deeper canyons along Georges Bank. Of the generally small number of participants in this fishery, some subset may hold Federal lobster permits and therefore may keep lobster as a bycatch for commercial purposes as regulations allow. Due to the depths at which the red crab fishery is prosecuted, lobsters are not as likely to be encountered in red crab directed trap fishing operations.

There is little quantitative information available detailing the composition of bycatch in U.S. or Canadian lobster fisheries. Currently, no U.S. bycatch monitoring program exists for the lobster fishery in the United States or Canada (NMFS 2003; Gendron 2005). While there has been no systematic review, bycatch in lobster traps is reported to consist of a variety of animals attracted to bait and capable of

entering traps. A study monitoring bycatch in the lobster fishery off New York found that tautog (23%) and scup (30%) were the two species of finfish most commonly taken in lobster pots (ASMFC 1997). In addition to fish, a variety of invertebrates are found in and attached to lobster traps. These include rock crabs, Jonah crabs, red crabs, starfish, urchins, whelks and conchs (ASMFC 1997; Butler 2004; Miller 2005). In Canada, cod and one species of cusk are species of concern, but bycatch rates of these species are low and vary by area. At present, no efforts are underway to limit the very small bycatch of these species (Miller 2005; Pezzack 2005).

Because of the nature of trap fisheries, fish and invertebrates landed in traps are likely to be discarded with lower mortality rates than those landed with other gear types such as trawls and dredges (Davis 2002). The number of animals that die after being caught and discarded in the American lobster fishery appears small compared to actual lobster landings.[21]

6.3.1.1 Jonah Crab

Jonah crabs*, Cancer borealis,* are managed under the Atlantic States Marine Fisheries Commission Interstate Fishery Management Plan for Jonah Crab and three addenda. Little is known about the species' biology, distribution, and relative abundance. Also known as the Rock crab and the Bull crab, Jonah crabs are found from Newfoundland to Florida, mainly in offshore, rocky habitats. Based off limited studies, it is theorized that Jonah crab reach maturity at a size between 4"-5" (ASMFC (website), 2018).

Jonah crab was traditionally an incidental catch of the lobster fishery, used by lobstermen as a supplement to cover operating expenses. However, due to the poor condition of the SNE lobster stock and market demand, it has become profitable for lobstermen to target Jonah crab with lobster traps/pots during times of low lobster landings (generally in the spring). This in turn has led to interest in targeting Jonah crabs year round.

Prior to the approval of the Commission's FMP, fishing effort on Jonah crab by trap vessels in Federal waters was only regulated and constrained by trap limits if the vessel possesses a Federal lobster permit. As such, vessels without a lobster permit were able to set an unlimited amount of 'crab' trap gear, though there is little evidence that unrestricted crab harvest was taking place in federal waters and these vessel would have been restricted by any state regulations already in place. The industry was concerned that this situation may have increased gear conflicts and a potential for illegal harvest of lobster by non-permitted vessel. Consequently, the Commission developed the Interstate Fishery Management Plan for Jonah crab in 2015. Because the fishery was predominantly a bycatch fishery prosecuted by lobster trap harvesters the Commission's FMP allows lobster trap license holders to continue to harvest Jonah crabs. Additionally, the FMP set forth possession limits for the non-trap fishery, a 4.75-inch minimum carapace width, harvester reporting consistent with each jurisdiction's current lobster reporting requirements, and a claw fishery for some southern states.

In May 2016, the Commission approved Addendum I to the FMP for Jonah Crab, revising incidental possession limits to historic levels. This addendum established an incidental limit of 1,000 crabs per trip for non-trap gear and non-lobster trap gear. Addendum II to the FMP was approved by the Commission in February 2017. This addendum allows fishermen to detach and harvest claws and sets a minimum claw length of 2.75" for greater than five gallons. This addendum also defines by-catch by a percent composition of catch and requires that fishermen landing Jonah crab as by-catch have another species of greater weight than landed Jonah crab. This prevents the expansion of a small-scale fishery under the by-

[21] The general discussion for "by-catch," above, was taken from "*Seafood Watch*," American Lobster-Northeast Region, Final Report, February 2, 2006. All sources as referenced therein (Elliott 2006).

catch allowance. In February 2018, the Commission approved Addendum III to the FMP and Addendum XXVI to the Lobster Plan. This addendum would improve lobster and Jonah crab harvester reporting in state and federal waters and allow for the collection of more spatial data to improve information in the fisheries.

Landings of Jonah crab in the Northeastern United States totaled 19.8 million pounds in 2018[22]. The greatest percentage of the landings came from Massachusetts and Rhode Island (see Table 29).

Table 29: Jonah Crab Landings (in pounds) by State, 2018*

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Total
2010	1,093,962	C	5,689,431	3,720,440	C	968,122	30,441		18,045	C	11,690,987
2011	1,096,592	C	5,379,792	3,213,119	C	69,440	26,909		92,401	C	9,947,027
2012	556,675	C	7,540,510	3,774,300	2,349	410,349	68,459		C	C	12,560,390
2013	379,073	340,751	10,109,590	4,651,796	51,462	371,675	C		C	C	16,075,597
2014	348,295	404,703	11,904,611	4,435,934	C	83,060	C		153,714	C	17,413,451
2015	312,063	C	9,128,876	4,298,894	C	207,424	68,116	C	39,750	C	14,253,340
2016	602,206	150,341	10,660,871	4,224,092	C	165,427	260,856	C	14,656	C	16,093,104
2017	1,042,807	113,354	11,698,342	4,111,281	C	158,231	433,132	C	23,564	C	17,594,243
2018	1,054,489	22,118	13,227,380	4,665,701	C	231,642	880,192	C	60,628	C	19,816,742
2019**	761,695	70,704	9,697,607	4,078,838	C	122,879	1,262,451	C	47,739	C	16,043,181

* C represents confidential data
** 2019 values for MA and CT were provided by ACCSP. All other 2019 landings were provided in state compliance reports

On November 13, 2019, NMFS issued a final rule implementing regulations that complement the Commission's Jonah Crab Plan and Addenda I and II. For the commercial fishery, the final rule limited harvesting of Jonah crabs to vessels that already held a lobster permit, given that the vast majority of Jonah crab catch had been from lobster traps. This requirement, along with a Federal minimum size, incidental catch limits, protections for egg-bearing females, and dealer permitting and reporting requirements became effective on December 12, 2019. For the recreational fishery, a daily possession limit and protections for egg-bearing females also became effective on December 12, 2019.

6.3.1.2 Red Crab

Deep-sea Red Crab, *Chaceon quinquedens,* are distributed along the continental shelf edge and slope of the western Atlantic from Emerald Bank, Nova Scotia to the Gulf of Mexico. They are typically found at depths of 2000 to 1800 meters (700-5900 feet), reach a maximum carapace width of 180 mm, and may live 15 years or more (Serchuk and Wigley, 1982). Scientific research suggests that red crabs are most likely opportunistic omnivores due to the limited availability of food at the depths common for this species. The red crab fishery was previously limited by the high catch-related mortality of the crabs (and rapid degradation of the meat) and a lack of economical processing. Technological advances have made fishing for this species feasible and fresh and frozen meat from the crab is now sold commercially (NEFMC, 2002).

Vessels operating in the red crab fishery typically make 28 to 35 trips per year, with each trip lasting seven to ten days. Trips are limited in duration primarily by the hold capacity of the vessel and the need

[22] Data on Jonah crab landings may be inaccurate due to frequent misidentification at the docks as well as substantial cash transactions that are never documented.

to keep the product fresh and alive. Vessels fish 500 to 600 traps/pots using 90 to 120 traps/pots per trawl. Traps/pots are allowed to soak 18 to 36 hours, with an average soaking time of 22.5 hours. The reported average trap/pot loss is just over 10 pots/traps per trip (NEFMC, 2002).

Management of the red crab fishery under the Magnuson-Stevens Act occurred relatively recently. Following a request from the NEFMC, the Secretary of Commerce issued an emergency rule effective May 18, 2001 for management of the red crab fishery in the EEZ from 35°15.3' North Latitude (the latitude of Cape Hatteras Light, NC) northward to the U.S./Canada border. An FMP was subsequently developed by the NEFMC, approved by NMFS and implemented by regulations effective October 20, 2002 (NEFMC, 2002). The regulations included measures to limit and control effort in the fishery, including a limited-access permit system. Specifically, access to the fishery was limited to those fishermen who met specific criteria during a qualifying period; no additional entrants were allowed, but permits may be sold or otherwise transferred to a new owner. The regulations included gear restrictions and days-at-sea (DAS) allocations. Other measures included gear marking requirements, mandatory vessel trip reports, and a requirement for operator permits and dealer permits (NMFS, 2002a).

According to the Atlantic Deep-Sea Red Crab Fishing Years 2020-2023 Specifications, the Council's recommended specifications were based on the results of the most recent peer-reviewed assessment of the red crab fishery carried out by the Data Poor Stocks Working Group in 2009, and the recommendations from the NEFMC's Scientific and Statistical Committee (SSC). In addition, recent landings, landing per unit of effort, port samples, discard information, and economic data suggest there has been no change in the size of the red crab stock since Amendment 3 was implemented in 2011. To assess whether the stock is considered to be overfished, current data on either stock status or fleet per trap CPUE are necessary. Because none of these data are currently available, stock status with respect to being in an overfished condition cannot be determined at this time.[23]

Of the 1,345 vessels permitted to fish for red crab in fishing year 2015, 1,341 vessels had incidental catch permits and 4 had limited access permits. Table 30 includes a summary of red crab landings by gear for fishing years 2010 through 2015. Traps/pots are the most prevalent primary gear, with minimal landings from other traps, bottom otter trawls, and sink gillnet.

[23] See NEFMC Stock Assessment and Fishery Management Report, January 6, 2010.

Table 30. Red Crab Landings and Revenue, Fishing Years 2010-2019

	Crab Pot	Other Gear	Total
2010 Landings (lb)	2,863,708	19,099	2,882,807
2010 Revenue	$2,803,450	$8,357	$2,811,807
2011 Landings (lb)	3,342,111	16,406	3,358,517
2011 Revenue	$3,252,266	$10,361	$3,262,627
2012 Landings (lb)	2,888,260	12,993	2,901,252
2012 Revenue	$2,888,260	$12,135	$2,900,394
2013 Landings (lb)	2,024,395	25	2,024,420
2013 Revenue	$2,024,395	$25	$2,024,420
2014 Landings (lb)	2,440,965	9	2,440,974
2014 Revenue	$2,440,965	$9	$2,440,974
2015 Landings (lb)	3,510,957	98,817	3,609,774
2015 Revenue	$3,487,809	$98,804	$3,586,613
2016 Landings (lb)	2,753,499	738,844	3,492,343
2016 Revenue	$2,753,499	$438,333	$3,191,832

Source: Data provided by NMFS, GARFO, APSD from CFDBS (dealer data)

The ex-vessel value of red crab landings in the Northeast totaled roughly $3 million in 2016. More recently, overall landings have decreased from over 4 million pounds in 2005 to between 2 and 3 million pounds in 2012 to 2014. Landings in 2015 and 2016 have increased slightly, to approximately 3.5 million pounds.

6.3.2 Bait

Bait is used in lobster pots to attract lobsters and is an important component of the lobster fishery. In the United States, Atlantic herring has historically been the major source of lobster bait, comprising nearly 90% of the bait used in Maine (Seafood Watch 2006).[24] It has been estimated that 50,000-60,000 tons of bait are used in the U.S. lobster fishery annually to yield approximately 35,000 tons of adult lobsters. According to a recent study, herring was the most popular kind of bait used inshore and nearshore, while skate was the most popular bait used offshore (Chamberlain, Weeks, Martins, 2017). Recent reductions to the Atlantic herring quotas coastwide are expected to have substantial negative impacts on the cost and availability of bait for the New England lobster trap fishery. Due to high costs and inconsistent supply in the past several years, the fishing industry has adopted new forms of lobster bait. Concerns with the introduction of pathogens and contaminants into the coastal environment prompted Maine Department of Marine Resources (DMR) to implement regulations that require a process for certifying new baits as safe prior to authorizing purchase or sale. These regulations and recent reductions in herring quotas that are expected to limit bait availability, prompted the ASMFC's Lobster Board to pass a resolution to compel states to implement similar measures by 2020 to curtail the introduction of harmful pathogens into the environment. Baits used in the Maine lobster between 2010 and 2018 are summarized in Figure 27, Figure 28, and Figure 29.

[24] The remaining 10% is made up of fish such as porgies, alewives, and redfish (SW 2006).

Figure 29. Maine Lobster Fishery Bait Types from Statistical Area 511, 2010-2018

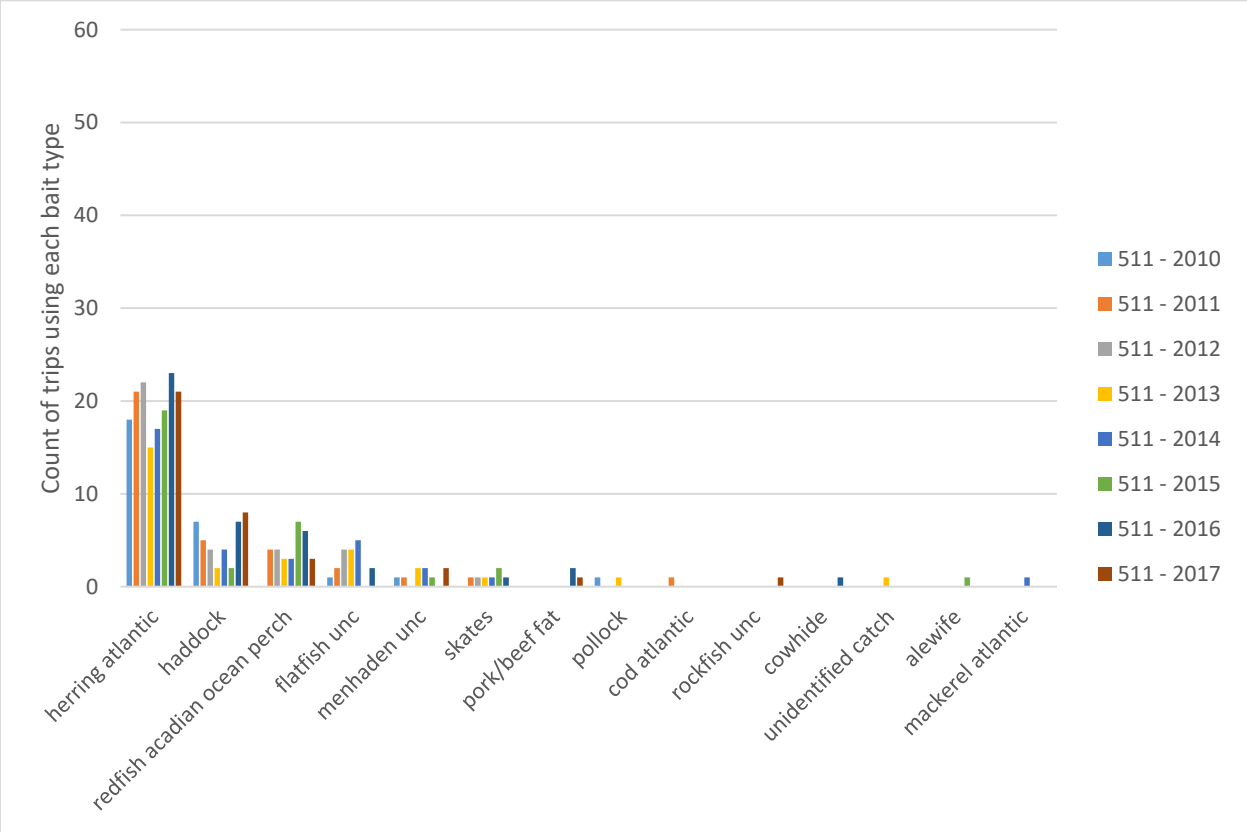


Figure 30. Maine Lobster Fishery Bait Types from Statistical Area 512, 2010-2018

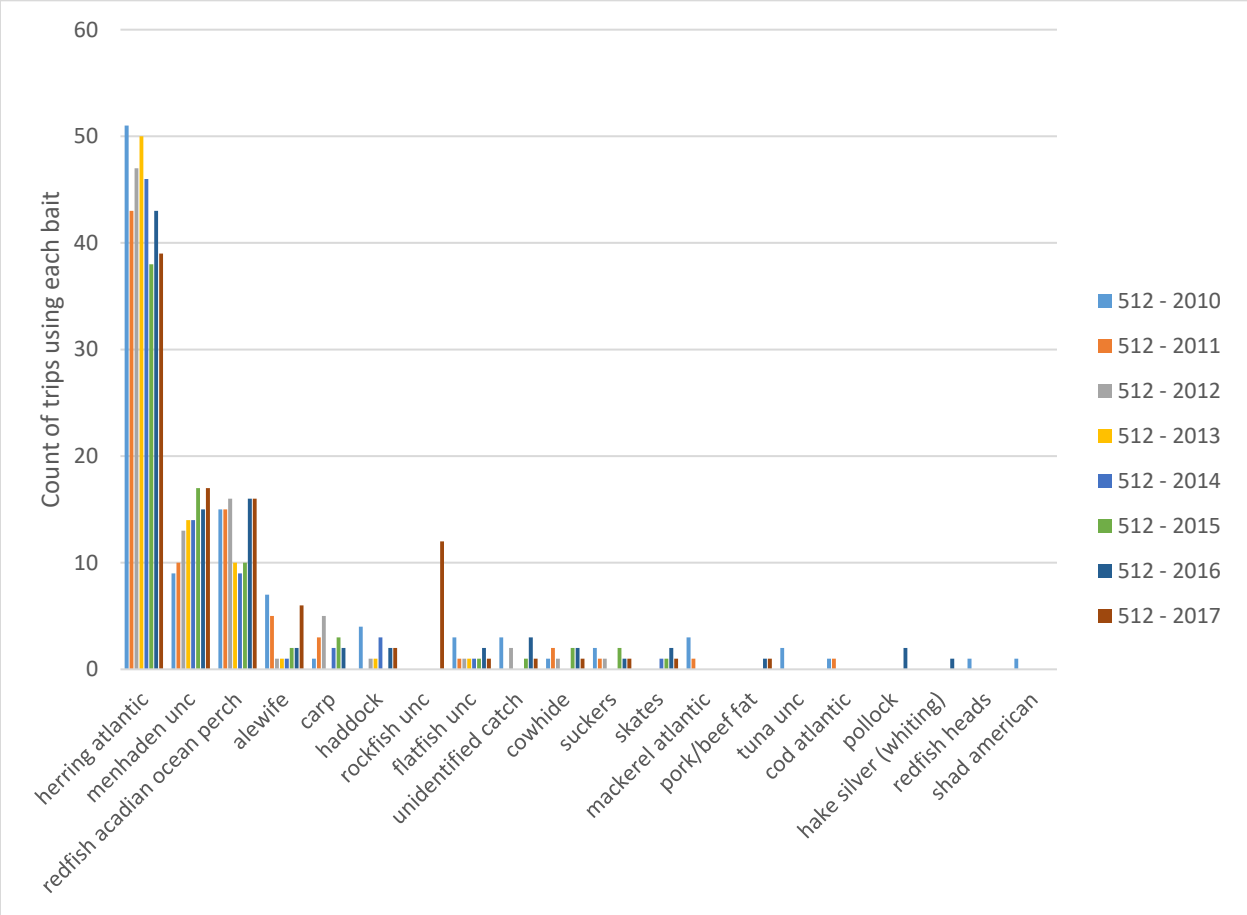
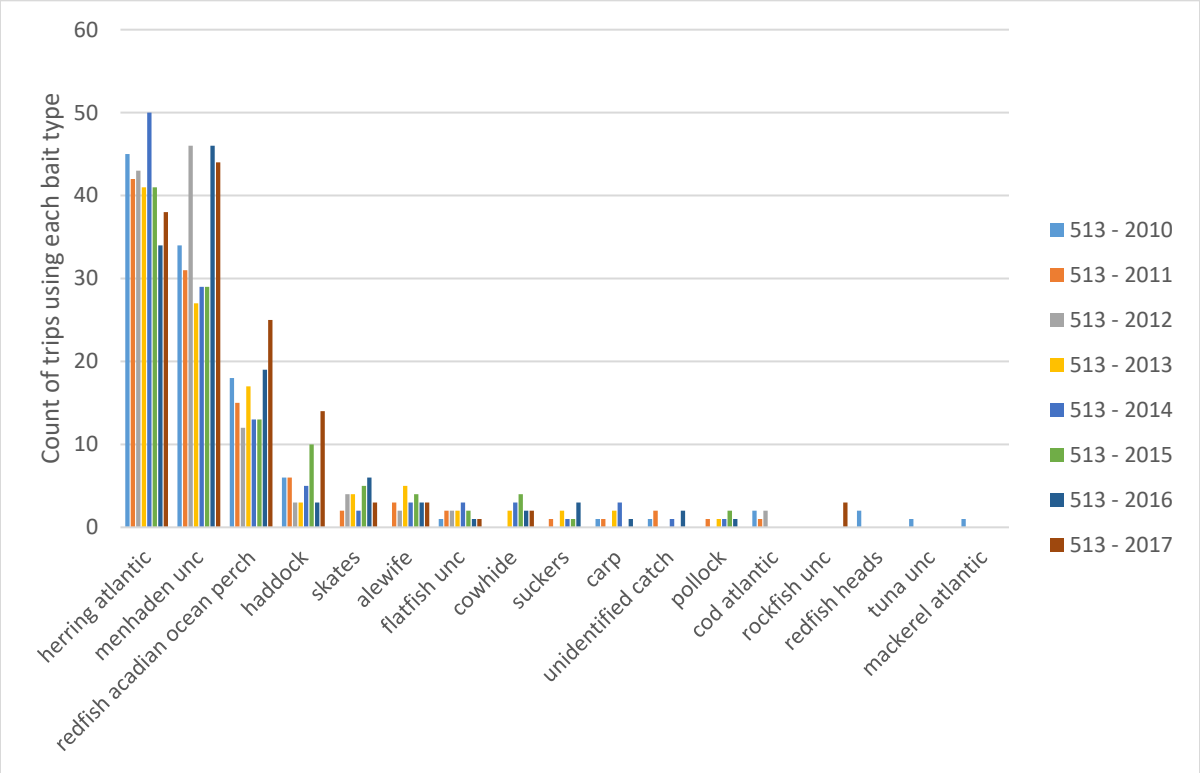


Figure 31. Maine Lobster Fishery Bait Types from Statistical Area 513, 2010-2018



6.3.2.1 Atlantic Herring

According to DMR, the emergence of large-scale fisheries for herring in the Gulf of Maine, Georges Bank, and southern New England waters was a relatively new occurrence, promoted in large part by demand for bait from the lobster industry. A majority of Atlantic herring fishing effort is in the Gulf of Maine, but also occurs in Georges Bank and areas south and west of Cape Cod (ASMFC).

Atlantic herring are widely distributed in continental shelf waters of the Northeast Atlantic, from Labrador to Cape Hatteras. In general, GOM herring migrate from summer feeding grounds along the Maine coast and on Georges Bank to Southern New England/Mid-Atlantic areas during winter, with larger individuals tending to migrate farther distances. Herring occur in every major estuary from the northern Gulf of Maine to the Chesapeake Bay. They are most abundant north of Cape Cod and become increasingly scarce south of New Jersey (Kelly & Moring 1986) with the largest and oldest fish found in the southern most portion of the range (Munroe 2002)(NEFMC, FEIS, 2019). Adult herring are common in more northern locations throughout the year, but are more abundant in the fall and winter. Further south, from New York to Chesapeake Bay, they are absent in the summer and never abundant. Juveniles are more common in more northern areas throughout the year and in all locations except Chesapeake Bay in the spring.

Spawning occurs in the summer and fall, starting earlier along the eastern Maine coast and southwest Nova Scotia (August – September) than in the southwestern Gulf of Maine (early to mid-October in the Jeffreys Ledge area) and Georges Bank (as late as November – December; Reid et al. 1999).

Herring is an important species in the food web of the northwest Atlantic. Herring eggs are deposited on the bottom and incubate for about 10 days. They are subject to predation by a variety of demersal fish

species, including winter flounder, cod, haddock and red hake. Juvenile herring, especially "brit" (age-1 juveniles) are preyed upon heavily due to their abundance and small size.

Atlantic herring is an important prey species for a large number of piscivorous (fish-eating) fish, elasmobranches (sharks and skates), marine mammals and seabirds in the northeastern United States. Unlike other pelagic (open ocean) fishes, such as Atlantic mackerel, herring are smaller and vulnerable to predation over most, if not all, of their life (Overholtz et al., 2000). The major finfish and elasmobranch species that feed heavily on Atlantic herring (or on clupeid species as a group) are Atlantic cod, silver hake, thorny skate, bluefish, goosefish, weakfish, summer flounder, white hake, and – in certain locations and times of year – Atlantic bluefin tuna. Other species that feed on herring are spiny dogfish, Atlantic halibut, red hake, striped bass, dusky shark, and black sea bass.

Most U.S. commercial catches occur between May and October in the Gulf of Maine, consistent with the peak season for the lobster fishery. In addition, there is winter fishery in southern New England, and catches from Georges Bank have increased somewhat in recent years. Recent landings are summarized in the table below.

Table 31. Total Annual Atlantic Herring Catch (2003-2020)

Year	Total Quota Allocated (mt)	Total Herring Catch (mt)	% Caught
2003	180,000	101,607	57%
2004	180,000	93,205	52%
2005	150,000	96,116	64%
2006	150,000	98,714	66%
2007	145,000	85,819	59%
2008	143,350	83,240	58%
2009	143,350	103,943	73%
2010	91,200	72,852	80%
2011	93,905	86,245	92%
2012	90,683	90,561	100%
2013	106,375	97,680	90%
2014	104,088	95,037	92%
2015	104,566	80,766	77%
2016	107,360	64,801	60%
2017	102,656	49,072	48%
2018	49,900	43,789	88%
2019	15,574	12,712	82%
2020	12,195	N/A	N/A

Source: NMFS GARFO.

Processing of Atlantic herring is for lobster bait (salted and barreled, fresh or frozen); sardines (canned) and food export (frozen whole). The shoreside processing sector of the Atlantic herring fishery has expanded substantially in the last few years. Consequently, there is no longer an allocation for foreign at sea processing (joint venture and internal waters processing operations). New herring processing plants have come on-line in New Bedford and Gloucester, Massachusetts and Cape May, New Jersey. Though the canneries that were once a mainstay of employment in Maine have virtually disappeared, the one remaining cannery is to be renovated so that it becomes a state-of-the-art facility.

Recent stock assessments document a dramatic decline in the Atlantic herring stock. In June 2018, a herring stock assessment was completed. The Atlantic herring resource was not overfished and overfishing is not occurring (NEFMC FEIS 2019). However, the stock was at relatively high risk of becoming overfished. In February 2019, we notified the New England Council that herring was approaching an overfished condition. Without improved recruitment, the probability of overfishing under recent catch levels was also likely relatively high. In June 2020, a new herring stock assessment[25] was completed. The New England Fishery Management Council approved appropriate specifications as part of draft Framework Adjustment 8 to the Atlantic Herring Fishery Management Plan for upcoming fishing years in September 2020. Based on the 2020 assessment results, we notified the New England Council in October 2020 that the Atlantic herring resource is now overfished, but overfishing is not occurring. The New England Council has begun work to develop a rebuilding plan.

The assessment concluded that herring catch would need to be reduced starting in 2018 to prevent overfishing and reduce the risk of the stock becoming overfished. At the request of the New England Council, NMFS substantially reduced Atlantic herring quotas for 2019. Through Framework 6 to the Atlantic Herring Fishery Management Plan, the New England Council recommended quotas for 2020 and 2021 that are lower still. Table 32 shows approved and recommended annual catch limits (ACL) from 2016-2021. Several factors contributed to Council's annual biological catch (ABC) recommendations for 2020-2021. The ABC is reduced from the overfishing limit to account for scientific uncertainty. The SSC and Council determined that a conservative method of management, specifically one that accounts for scientific uncertainty, was essential due to the current status of the herring stock and the uncertainty surrounding estimates of biomass and recruitment.

Table 32. Atlantic Herring Annual Catch Limits

Year	Annual Catch Limit (mt)
2016	104,800
2017	104,800
2018	49,900
2019	15,065
2020	11,571
2021	4,814
2022	4,098
2023	4,098

While the reduction in available herring for use as bait has decreased, the need for bait has not. Bait providers and lobsters harvesters have had to turn to other sources to meet supply. Some of those additional species are discussed in greater detail below. In 2019, the Lobster Board convened a Lobster Bait Working Group to develop a process for assessing the risk of imported baits (e.g., byproducts of finfish aquaculture). The state of Maine had previously developed a program to evaluate newly proposed baits and this program was presented to other New England states, though no coordinated action has been taken.

[25] https://apps-nefsc.fisheries.noaa.gov/saw/sasi/uploads/2020_Herring_Unit_Report.pdf

6.3.2.2 Skates

The skate bait fishery bait has been prosecuted historically as a directed fishery, involving vessels primarily from Southern New England ports that target a combination of little skates (>90%) and, to a much lesser extent, juvenile winter skates (<10%) (NEFMC 2015).

Little Skate

The geographical distribution of little skate (*Leucoraja erinacea*) includes the southwestern Gulf of Maine, specifically Cape Cod Bay and inshore north of Cape Ann, Georges Bank, Southern New England, and the Mid-Atlantic Bight. The highest abundances are on Georges Bank and in Southern New England. They are occasionally caught in the Maine/New Hampshire trawl survey. Little skate are generally found on sandy or gravelly bottoms, but also occur on mud (Bigelow and Schroeder 1953; McEachran and Musick 1975; Langton et al. 1995; Packer and Langton, unpublished manuscript). In southern New England, at a depth of 55 m, little skate was associated with particular microhabitat features on the surface of the sediment during the day, including biogenic depressions and flat sand, but were randomly distributed at night (Auster et al. 1995). Skates are known to remain buried in depressions during the day and are more active at night (Michalopoulos 1990).

Generally, invertebrates such as decapod crustaceans and amphipods are the most important prey items, followed by polychaetes. Isopods, bivalves, and fishes (sand lance, alewives, herring, cunners, silversides, tomcod, and silver hake) are of minor importance. Little skate also eat hydroids, copepods, ascidians and squid.

Egg cases are found partially- to fully-developed in mature females year-round but several authors report that they are most frequently encountered from late October-January and from June-July (Fitz and Daiber 1963; Richards et al. 1963; Scott and Scott 1988). Little skate gestation is at least six months after the cases are deposited (Bigelow and Schroeder 1953, Richards et al. 1963).

As of the 2008 Data Poor Stocks Working Group (DPSWG) meeting, little skate biomass was at 5.04 kg/tow, which is above overfished threshold reference point of 3.51 kg/tow indicating that the species is not overfished. Based on the coefficient of variation in the survey index, the species is not experiencing overfishing. Data collected through spring 2013 indicate that the status remains not overfished/overfishing not occurring.

Winter Skate

Similar to little skate, the geographical distribution of winter skate (*Leucoraja ocellata*) includes the southwestern Gulf of Maine, specifically Cape Cod Bay and inshore north of Cape Ann, Georges Bank, Southern New England, and the Mid-Atlantic Bight. The highest abundances are on Georges Bank. Relative to other skates (smooth, thorny, barndoor), winter skate has a fairly shallow distribution. Bigelow and Schroeder (1953) stated that this species is confined to sandy and gravelly bottoms, but Tyler (1971) reported it from mud bottoms in Passamaquoddy Bay. In Long Island Sound during the spring, winter skate were most abundant on sand bottoms in the Mattituck Sill and Eastern Basin (Gottschall et al. 2000). On the Scotian Shelf, Scott (1982) reports that the distribution of winter skate was confined to sand and gravel bottoms and Scott (1982) suggests that bottom type, rather than depth, appears more important in determining the distributions of winter skate.

According to the Northeast Fisheries Science Center (NEFSC) food habits database, crustaceans make up more than half the diet of smaller winter skates (<61 cm TL), and fish dominate the diet for larger winter skates (>91 cm TL). The proportion of polycheates in the diet increases until the skates are 81 cm TL. Prey exceeding the 5% by weight threshold in the stomachs of juvenile and adult winter skate include:

Sand lance (17%), bivalve mollusks (13%), polychaetes (12%), other fish (8%), and gammarid amphipods (7%).

Bigelow and Schroeder (1953) report egg deposition to occur during summer and fall off Nova Scotia and, quoting Scattergood, probably in the Gulf of Maine as well. They also state that egg deposition continues into December and January off southern New England. Sulikowski et al. (2004) found that egg-case production is highest in the fall in the Gulf of Maine off New Hampshire. However, the presence of reproductively capable females during most months of the year and spermatocysts within the male testis year round implies that reproduction could occur at other times of the year.

As of the 2008 DPSWG meeting (DPSWG 2009), winter skate biomass was at 2.93 kg/tow, which is above overfished threshold reference point of 2.83 kg/tow indicating that the species is not overfished. Based on the coefficient of variation in the survey index, the species was not experiencing overfishing at that time. However, the most recent assessment update indicates a 23% decrease in survey catch per tow during 2010-2012 as compared to 2009-2011, which means that overfishing is occurring on the stock. At 6.68 kg/tow, the stock is still above the biomass threshold, so it is not overfished.

6.3.2.3 Acadian Redfish

Acadian redfish, *Sebastes fasciatus*, is managed by the New England Fishery Management Councils as one of the species in the Northeast Multispecies Fishery Management Plan. Acadian redfish are found in the Atlantic Ocean from the coast of Norway to Georges Bank.

The Acadian redfish, Sebastes fasciatus Storer, and the deepwater redfish, S. mentella Travin, are virtually indistinguishable from each other based on external characteristics. Deepwater redfish are less prominent in the more southerly regions of the Scotian Shelf and appear to be virtually absent from the Gulf of Maine. Conversely, Acadian redfish appear to be the sole representative of the genus Sebastes. NMFS manages Acadian redfish inhabiting the U.S. waters of the Gulf of Maine and deeper portions of Georges Bank and the Great South Channel as a unit stock.

The redfish are a slow growing, long-lived, ovoviviparous species with an extremely low natural mortality rate. Redfish fertilize their eggs internally. The eggs develop into larvae within the oviduct, and are released near the end of the yolk sac phase. The release of larvae lasts for 3 to 4 months with a peak in late May to early June. Newly spawned larvae occur in the upper 10 m of the water column; at 0.4 to 1.0 in (10 to 25 mm). The post-larvae descend below the thermocline when about 1 in (25 mm) in length. Young-of-the-year are pelagic until reaching 1.6 to 2.0 in (40 to 50 mm) at 4 to 5 months old. Therefore, young-of-the-year typically move to the bottom by early fall of their first year.

Redfish of 9 in (22 cm) or greater are considered adults. In general, the size of landed redfish positively correlates with depth. This may be due to a combination of differential growth rates of stocks, confused species identification (deepwater redfish are a larger species), size-specific migration, or gender-specific migration (females are larger). Redfish make diurnal vertical migrations linked to their primary euphausiid prey. Nothing is known about redfish breeding behavior. However, redfish fertilization is internal and fecundity is relatively low.

The redfish stock is not overfished and overfishing is not occurring. Table 33 summarizes the available quotas and catch from 2013 through 2019.

Table 33. Acadian Redfish Annual Catch Limits and Total Catch, 2013-2018

Year	Annual Catch Limit (mt)	Catch (mt)	% Caught
2014	10,909	4,748.4	43.5
2015	11,393	5,291.8	46.4
2016	9,837	4,091.6	41.6
2017	10,514	4,661.5	44.3
2018	10,986	5,369.1	48.9
2019	11,208	4,963.0	44.3

Source: GARFO NE Multispecies Year End Accounting, https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/h/groundfish_catch_accounting

6.3.2.4 Menhaden

According to the ASMFC website, Atlantic menhaden (*Brevoortia tyrannus*) occupy estuaries and coastal waters from northern Florida to Nova Scotia and are believed to consist of a single population. Adult and juvenile menhaden form large, near-surface schools, primarily in estuaries and nearshore ocean waters from early spring through early winter. By summer, menhaden schools stratify by size and age along the coast, with older and larger menhaden found farther north. During fall-early winter, menhaden of all sizes and ages migrate south around the North Carolina capes to spawn.

Sexual maturity begins as early as age one to just before age three, with major spawning areas from the Carolinas to New Jersey. The majority of spawning primarily occurs offshore (20-30 miles) during winter. Buoyant eggs hatch at sea, and larvae are carried into estuarine nursery areas by ocean currents. Juveniles spend most of their first year in estuaries, migrating to the ocean in late fall.

Menhaden are very efficient filter feeders. Water is pushed through specialized gill rakers that are formed into a basket that allows them to capture plankton. Menhaden are an important component of the food chain, providing a link between primary production and higher organisms by consuming plankton and providing forage for species such as striped bass, bluefish, and weakfish, to name just a few.

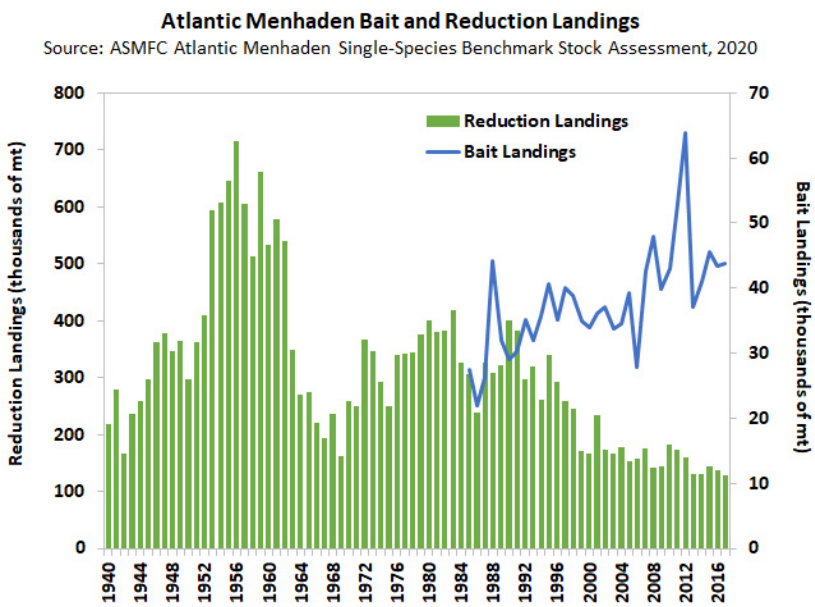
Based on the 2017 Stock Assessment Update, Atlantic menhaden are neither overfished nor experiencing overfishing. Fishing mortality rates have remained below the overfishing threshold (1.85) since the 1960s, and hovered around the overfishing target (0.8) through the 1990s. Generally, fishing mortality has been decreasing throughout the history of the fishery. In 2018, the Commission continued to work on two Atlantic menhaden benchmark stock assessments: A single-species assessment and the highly anticipated ecosystem-based assessment, which aims to develop ecological reference points specific to menhaden. Both assessments will be used to evaluate the health of the stock and inform the management of the species in an ecological context.

The Atlantic menhaden commercial fishery consists of a reduction fishery (named because it "reduces" the whole fish into fish meal, fish oil, and fish solubles) and a bait fishery. The reduction fishery grew with the advent of purse seines in the mid-1800s and reached peak landings in 1956 at 712,100 mt. At the time, over 20 menhaden reduction factories ranged from northern Florida to southern Maine. In the 1960s, the Atlantic menhaden stock contracted geographically, and many of the reduction factories north of the Chesapeake Bay closed due to a scarcity of fish. Consequently, reduction landings dropped to 161,000 mt in 1969. In the 1970s and 1980s, the menhaden population began to expand (primarily due to a series of above average year classes entering the fishery), and reduction landings rose to around 300,000-400,000 mt. Adult menhaden were again abundant in the northern half of their range and, as a result, reduction factories in New England and Canada began processing menhaden again by the mid-

1970s. However, by 1989 all shore-side reduction plants in New England had closed, mainly because of odor abatement regulations.

During the 1990s, the Atlantic menhaden stock contracted again, largely due to a series of poor to average year classes. Over the next decade, several reduction plants consolidated or closed, resulting in a significant reduction in fleet size and fishing capacity. By 2006, there was only one remaining reduction plant in operation on the Atlantic coast processing menhaden into fishmeal and oil. In 2017, roughly 128.9 thousand mt were landed for reduction purposes. Commercial landings in 2019, including reduction, bait, bycatch, and episodic event landings, were 208,837 mt, or 96% of the total allowable catch (TAC). This represents a 9% decrease in landings from 2018. Figure 7 summarizes historic menhaden landings.

Figure 32. Menhaden Landings, 1940-2017



Source: ASMFC website

6.4 Physical Environment

The Northeast U.S. Shelf Ecosystem has been described as including the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The continental slope includes the area east of the shelf, out to a depth of 2000 m. Four distinct sub-regions comprise the Greater Atlantic Region: The Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope.

The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and strong currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, North Carolina. The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is fairly homogenous, with

exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley, and in areas of glacially rafted hard bottom.

Pertinent physical characteristics of the three sub-regions that could potentially be affected by this action are described in this section. Information included in this document was extracted from Stevenson et al. (2004).

6.4.1 Gulf of Maine

The Gulf of Maine is actually an enclosed coastal sea, bounded on the east by Browns Bank, on the north by the Nova Scotian (Scotian) Shelf, on the west by the New England states, and on the south by Cape Cod and Georges Bank. The Gulf of Maine was glacially derived, and is characterized by a system of deep basins, moraines and rocky protrusions with limited access to the open ocean. This geomorphology influences complex oceanographic processes that result in a rich biological community.

The Gulf of Maine is topographically unlike any other part of the continental border along the U.S. Atlantic coast. The Gulf of Maine's geologic features, when coupled with the vertical variation in water properties, result in a great diversity of habitat types. It contains twenty-one distinct basins separated by ridges, banks, and swells. The three largest basins are Wilkinson, Georges, and Jordan. Depths in the basins exceed 250 meters, with a maximum depth of 350 meters in Georges Basin, just north of Georges Bank. The Northeast Channel between Georges Bank and Browns Bank leads into Georges Basin, and is one of the primary avenues for exchange of water between the Gulf of Maine and the North Atlantic Ocean.

High points within the Gulf include irregular ridges, such as Cashes Ledge, which peaks at 9 meters below the surface, as well as lower flat topped banks and gentle swells. Some of these rises are remnants of the sedimentary shelf that was left after most of it was removed by the glaciers. Others are glacial moraines and a few, like Cashes Ledge, are outcroppings of bedrock. Very fine sediment particles created and eroded by the glaciers have collected in thick deposits over much of the Gulf of Maine, particularly in its deep basins. These mud deposits blanket and obscure the irregularities of the underlying bedrock, forming topographically smooth terrains. Some shallower basins are covered with mud as well, including some in coastal waters. In the rises between the basins, other materials are usually at the surface. Unsorted glacial till covers some morainal areas, as on Sewell Ridge to the north of Georges Basin and on Truxton Swell to the south of Jordan Basin. Sand predominates on some high areas and gravel, sometimes with boulders, predominates on others.

Coastal sediments exhibit a high degree of small-scale variability. Bedrock is the predominant substrate along the western edge of the Gulf of Maine north of Cape Cod in a narrow band out to a depth of about 60 meters. Rocky areas become less common with increasing depth, but some rock outcrops poke through the mud covering the deeper sea floor. Mud is the second most common substrate on the inner continental shelf. Mud predominates in coastal valleys and basins that often abruptly border rocky substrates. Many of these basins extend without interruption into deeper water. Gravel, often mixed with shell, is common adjacent to bedrock outcrops and in fractures in the rock. Large expanses of gravel are not common, but do occur near reworked glacial moraines and in areas where the seabed has been scoured by bottom currents. Gravel is most abundant at depths of 20 - 40 meters, except in eastern Maine where a gravel-covered plain exists to depths of at least 100 meters. Bottom currents are stronger in eastern Maine where the mean tidal range exceeds 5 meters. Sandy areas are relatively rare along the inner shelf of the western Gulf of Maine, but are more common south of Casco Bay, especially offshore of sandy beaches.

6.4.2 Georges Bank

Georges Bank is a shallow (3-150 meters depth), elongate (161 kilometers wide by 322 kilometers long) extension of the continental shelf that was formed by the Wisconsinian glacial episode. It is characterized by a steep slope on its northern edge and a broad, flat, gently sloping southern flank. The Great South Channel lies to the west. Natural processes continue to erode and rework the sediments on Georges Bank. It is anticipated that erosion and reworking of sediments will reduce the amount of sand available to the sand sheets, and cause an overall coarsening of the bottom sediments.

Glacial retreat during the late Pleistocene deposited the bottom sediments currently observed on the eastern section of Georges Bank, and the sediments have been continuously reworked and redistributed by the action of rising sea level, and by tidal, storm and other currents. The strong, erosive currents affect the character of the biological community. Bottom topography on eastern Georges Bank is characterized by linear ridges in the western shoal areas; a relatively smooth, gently dipping sea floor on the deeper, easternmost part; a highly energetic peak in the north with sand ridges up to 30 meters high and extensive gravel pavement; and steeper and smoother topography incised by submarine canyons on the southeastern margin.

The central region of the Bank is shallow, and the bottom is characterized by shoals and troughs, with sand dunes superimposed upon them. The two most prominent elevations on the ridge and trough area are Cultivator and Georges Shoals. This shoal and trough area is a region of strong currents, with average flood and ebb tidal currents greater than 4 kilometers/hour, and as high as 7 kilometers/hour. The dunes migrate at variable rates, and the ridges may also move. In an area that lies between the central part and Northeast Peak, there are high-energy areas as between 35 - 65 meters deep, where sand is transported on a daily basis by tidal currents, and a low-energy area at depths > 65 meters that is affected only by storm currents.

The area west of the Great South Channel, known as Nantucket Shoals, is similar in nature to the central region of the Bank. Currents in these areas are strongest where water depth is shallower than 50 meters. This type of traveling dune and swale morphology is also found in the Mid-Atlantic Bight, and further described in that section of the document. The Great South Channel separates the main part of Georges Bank from Nantucket Shoals. Sediments in this region include gravel pavement and mounds, some scattered boulders, sand with storm generated ripples, and scattered shell and mussel beds. Tidal and storm currents range from moderate to strong, depending upon location and storm activity.

6.4.3 Mid-Atlantic Bight

The Mid-Atlantic Bight includes the shelf and slope waters south of Georges Bank to Cape Hatteras, and east to the Gulf Stream. Like the rest of the continental shelf, the topography of the Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments derive from the retreat of the last ice sheet, and the subsequent rise in sea level. Since that time, currents and waves have modified this basic structure. The northern part of this area is also referred to as southern New England.

The shelf slopes gently from shore out to between 100 and 200 kilometers offshore where it transforms to the slope (100 - 200 meters water depth) at the shelf break. In both the Mid-Atlantic and on Georges Bank, numerous canyons incise the slope, and some cut up onto the shelf itself. The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales. Most of these structures are relic except for some sand ridges and smaller sand-formed features. Shelf valleys and slope canyons were formed by rivers of glacier outwash that deposited sediments on the outer shelf edge as they entered the ocean. Most valleys cut about 10 meters into the

shelf, with the exception of the Hudson Shelf Valley that is about 35 meters deep. The valleys were partially filled as the glacier melted and retreated across the shelf. The glacier also left behind a lengthy scarp near the shelf break from Chesapeake Bay north to the eastern end of Long Island. Shoal retreat massifs were produced by extensive deposition at a cape or estuary mouth. Massifs were also formed as estuaries retreated across the shelf.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 - 10 meters covers most of the shelf. The mean bottom flow from the constant southwesterly current is not fast enough to move sand, so sediment transport must be episodic. Net sediment movement is in the same southwesterly direction as the current. The sands are mostly medium to coarse grains, with finer sand in the Hudson Shelf Valley and on the outer shelf. Mud is rare over most of the shelf, but is common in the Hudson Shelf Valley. Occasionally relic estuarine mud deposits are re-exposed in the swales between sand ridges. Fine sediment content increases rapidly at the shelf break, which is sometimes called the "mud line," and sediments are 70 - 100% finer on the slope. On the slope, silty sand, silt, and clay predominate.

The southern New England area is somewhat distinct from the rest of the Mid-Atlantic Bight because the geology there was – like Georges Bank – more affected by the glaciers. As a result, there is a greater variety of bottom habitats south of Rhode Island and Cape Cod than in the rest of the Mid-Atlantic. The following text is excerpted from the Rhode Island Special Ocean Area Management Plan, Vol. 1 2010: citations to primary references in that report have been deleted.

The glacially derived bottom topography and composition determines the benthic characteristics that will create the ecological habitats of Rhode Island and Block Island Sounds. The seafloor in this area is characterized by four major depositional environments, presented below in order of increasing grain size:

a. A shore-parallel feature, called a depositional platform sand sheet, comprised of medium sand containing small ripples. This feature serves an important function as a short-term sand storage area for supplying alongshore transport of sand to the east, or onshore transport to shoreline environments. These features provide habitats that regularly undergo significant change;

b. Features that are slightly lower than the cobble-gravel surrounding them, called cross-shore swaths, are composed of medium to coarse sand with small dunes. These features serve as a conduit for sand transport during storm events, providing habitat that undergoes regular, but less frequent, alteration;

c. Cobble gravel that is in equilibrium (e.g., no loss or accretion), but often rearranged after and during storm events, called depositional gravel pavement. These features provide habitat that is relatively stable, yet subject to occasional disturbance;

d. Concentrations of boulders and gravel inherited from the moraine, referred to as glacial outcrops, and which are more or less fixed in place, providing long-term habitats. These features, containing sand, coarse sand, cobble- gravel, and boulders, describe the composition of the major benthic environments found in the area. These features are characteristic, though not definitive, of the seafloor composition which shows gradation from and between one to another of these features.

While the basic overall geology of the area can be considered to be static, the actual local, physical, benthic environment found on the bottom is not. Sediments and bottom features are continually subjected to physical forces that alter their characteristics, and their location on the seafloor. Upwelling and

downwelling currents, the orbital motion of waves, and unidirectional lateral flows all act upon and alter bottom features. Likewise, channels, bottom topographic high points, and other bathometric features will influence as well as create these flows and currents. The flows and currents promote the transport of sand-sized materials and the migration of large bedforms such as dunes, sand ripples and sand waves, across the bottom. The sorting, movement, and placement of seafloor sediments that occurs during these processes creates a patchwork of habitats ranging from fine silts to gravelly areas to boulder fields. The diversity of physical habitats is a powerful influence on benthic ecological make up, determining what species will reside in what habitats in the bottom community; most often, the greater the structural physical diversity of an environment, the greater the biotic diversity of that ecosystem. Since these ecological "shaping" processes are ongoing, the bottom community of the area, particularly those comprised of mud, sand, and/or silt, are in a constant state of flux as habitat patches are altered or destroyed, moved or recreated along the bottom. These benthic communities could therefore be expected to be composed of organisms that can withstand, and perhaps even thrive in an ever changing benthic environment.

6.4.4 Lobster Habitat

Juvenile and adult American lobsters occupy a wide variety of benthic habitats from the intertidal zone to depths of 700 meters. They are most abundant in relatively shallow coastal waters. Shelter is a critical habitat requirement for lobsters.

Once released into the water column, the American Lobster larvae remain planktonic for four life-stages before settling to the sea floor (ASMFC 2000). The time larvae spend between hatching and stage IV also varies, largely with the ocean temperature, ranging from approximately 10 days at 23°C to nearly two months at 10°C. During settlement, 4th stage post-larvae exhibit strong habitat selection behavior and seek small shelter-providing substrates (Hudon 1987; Wahle and Steneck 1991, 1992; Incze et al. 1997; Palma et al. 1999). The highest abundance of newly settled lobster is in cobble beds (Wahle and Steneck 1991; Cobb and Wahle 1994; Palma et al. 1999) but they have been found at low densities in marsh grass root mats in southern New England (Able et al.1988). Young of the year lobster are rare or absent from sediment substrates and eel grass habitats although early benthic phase lobster (sensu Steneck 1989; Wahle and Steneck 1991 for lobster < 40 mm CL) are not.

Early benthic phase lobster are cryptic and quite restricted in habitat use (Wahle and Steneck 1991; Lawton and Lavalli 1995). They usually do not emerge from their shelters until reaching about 25 mm CL (Wahle 1992; Cobb and Wahle 1994). Larger, but still immature, adolescent phase lobster are found on a variety of bottom types, usually characterized by an abundance of potential shelters. Inshore, they are found in greatest abundance in boulder areas (Cooper and Uzmann 1980) but they also seek shelter under large algae such as kelp (Bologna and Steneck 1993). Adolescent-phase lobster also live on relatively featureless substrate where juvenile population densities are generally low (Palma et al.1999). Juvenile densities are high in shallow water, (0-30 ft) on sand, and mud substrate in inshore Massachusetts waters (Estrella, personal communication).

The following description of lobster habitats in the Northeast region of the U.S. (Maine to North Carolina) is based primarily on a report prepared by Lincoln (1998) from a variety of primary source documents. This information has been supplemented by the addition of some more recent research results. Table 34 summarizes information on lobster densities by habitat type. Unless otherwise noted, the information noted below was originally provided by Cooper and Uzmann (1980).

Inshore Lobster Habitats

Estuaries

- *Mud base with burrows* – These occur primarily in harbors and quiet estuaries with low current speeds. Lobster shelters are formed from excavations in soft substrate. This is an important habitat for juveniles, and densities can be very high, reaching 20 animals per square meter.
- *Rock, cobble and gravel* – Juveniles and adolescents have been reported on shallow bottom with gravel and gravely sand substrates in the Great Bay Estuary, NH, on gravel/cobble substrates in outer Penobscot Bay, ME (Steneck and Wilson 1998), and in rocky habitats in Narragansett Bay, RI (Lawton and Lavalli 1995). Densities in Penobscot Bay exceeded 0.5 juveniles and 0.75 adolescents/m^2. According to unpublished information cited by Lincoln (1998), juvenile lobsters in Great Bay prefer shallow bottoms with gravely sand substrates.
- *Rock/shell* – Adult lobsters in the Great Bay Estuary use sand and gravel habitats in the channels but seem to prefer a rock/shell habitat more characteristic of the high temperature, low salinity regimes of the central bay.

Salt Marshes/Peat

Lobster shelters are formed from excavations cut into peat. Reefs form from blocks of salt marsh peat that break and fall into adjacent marsh creeks and channels and seem to provide moderate protection for small lobsters from predators (Barshaw and Lavalli 1988). Densities are high (up to 5.7/m^2).

Kelp beds

Kelp beds in New England consist primarily of *Laminaria longicruris* and *L. saccharina*. Lobsters were attracted to transplanted kelp beds at a nearshore study site in the mid-coast region of Maine, reaching densities that were almost ten times greater than in nearby control areas (Bologna and Steneck 1993). Lobsters did not burrow into the sediment but sought shelter beneath the kelp. Only large kelp (> 50 cm in length) was observed sheltering lobsters and was used in the transplant experiments.

Eelgrass

Lobsters have been associated with eelgrass beds in the lower portion of the Great Bay Estuary in New Hampshire (Short et al. 2001). Eighty percent of the lobsters collected from eelgrass beds were adolescents. Average density was 0.1/m^2, greater than reported by Barshaw and Lavalli (1988). In mesocosm experiments, Short et al. reported that lobsters showed a clear preference for eelgrass over bare mud. This research showed that adolescent lobsters burrow in eelgrass beds, use eelgrass as an overwintering habitat, and prefer eelgrass to bare mud.

Intertidal Zone

Research in Maine has demonstrated the presence of early settlement, postlarval, and juvenile lobsters in the lower intertidal zone (Cowan 1999). Two distinct size classes were consistently present: 3-15 mm CL and 16-40 mm CL. Monthly mean densities during a five-year period ranged from 0-8.6 individuals/m^2 at 0.4 m below mean low water. Preliminary results indicate that areas of the lower intertidal zone serve as nursery grounds for juvenile lobster.

Inshore Lobster Habitats

- *Sand base with rock* – This is the most common inshore rock type in depths > 40 m. It consists of sandy substrate overlain by flattened rocks, cobbles, and boulders. Lobsters are associated with abundant sponges, Jonah and rock crabs. Shelters are formed by excavating sand under a rock to form U-shaped, shallow tunnels. Densities of sub-adult lobsters are fairly high (Table 34).
- *Boulders overlaying sand* – This habitat type is relatively rare in inshore New England waters. Compared to other inshore rocky habitats, densities are low (Table 34).

- *Cobbles* – Lobsters occupy shelters of varying size in the spaces among rocks, pebbles, and boulders. Densities as high as 16 lobsters/m^2 have been observed, making this the most densely populated inshore rock habitat for lobsters in New England.
- *Bedrock base with rock and boulder overlay* – This rock type is relatively common inshore from low tide to depths of 15-45 m. Shelters are formed by rock overhangs or crevices. Encrusting coralline algae and attached organisms such as anemones, sponges, and mollusks cover exposed surfaces. Green sea urchins and starfish are common. Cunner, tautog, sculpin, sea raven, and redfish are the most abundant fish. Lobster densities are low (Table 34).
- *Mud-shell/rock substrate* – This habitat type is usually found where sediment discharge is low and shells make up the majority of the bottom. It is best described off Rhode Island. Densities are low.

Offshore Lobster Habitats

- *Sand base with rocks* – Although common inshore (see above), this habitat is rather restricted in the offshore region except along the north flank of Georges Bank.
- *Clay base with burrows and depressions* – This habitat is common on the outer continental shelf and slope. Lobsters excavate burrows up to 1.5 m long. There are also large, bowl-like depressions that range in size from 1 to 5 m in diameter and may shelter several lobsters at a time. Minimum densities of 0.001 lobsters/m^2 have been observed in summer (Table 34).
- *Mud-clay base with anemones* – This is a common habitat for lobsters on the outer shelf or upper slope. Forests of mud anemones (*Cerianthus borealis*) may reach densities of 3 or 4 per square meter. Depressions serve as shelter for relatively small lobsters at minimum densities of 0.001/m^2 (Table 34).
- *Mud base with burrows* – This habitat occurs offshore mainly in the deep basins, in depths up to 250 m. This environment is extremely common offshore. Lobsters occupy this habitat, but no density estimates are available.

Submarine Canyons

There are more than 15 submarine canyons that cut into the shelf edge on the south side of Georges Bank. These canyons were first surveyed in the 1930s, but they were not fully explored until manned submersibles were used extensively in the 1980s. Detailed information on canyon habitats for American lobster is available primarily for Oceanographer Canyon but is generally applicable to other major canyons on Georges Bank. These canyons present a diverse group of habitat types. Concentrations of adolescents and adult lobsters are substantially greater in submarine canyons than in nearby areas that are occupied mostly by adults (Cooper et al. 1987). The following information on lobster habitats is extracted from Cooper and Uzmann (1980) and Cooper et al. (1987).

- *Canyon rim and walls* – Sediments consist of sand or semi-consolidated silt with less than 5% overlay of gravel. The bottom is relatively featureless. Burrowing mud anemones are common. Lobster densities are low (Table 34).
- *Canyon walls* – Sediments consist of gravely sand, sand, or semi-consolidated silt with more than 5% gravel. The bottom is relatively featureless. Burrowing mud anemones are common, as are Jonah crabs, ocean pout, starfish, rosefish, and squirrel hake. Lobster densities are a little greater than in substrates that contain less gravel (see above).
- *Rim and head of canyons at base of walls* – Sand or semi-consolidated silt substrate is overlain by siltstone outcrops and talus up to boulder size. The bottom is very rough and is eroded by animals and current scouring. Lobsters are associated with rock anemones, Jonah crabs, ocean pout, tilefish, starfish, conger eels, and white hake. Densities are highly variable but reach up to 0.13 lobsters/m^2 (Table 34).

- *Pueblo villages* – This habitat type exists in the clay canyon walls and extends from the heads of canyons to middle canyon walls. It is heavily burrowed and excavated. Slopes range from 5 to 70 degrees, but are generally >20 and <50 degrees. Juvenile and adult lobsters and associated fauna create borings up to 1.5 m in width, 1 m in height, and 2 m or more in depth. Lobsters are associated with Jonah crabs, tilefish, hermit crabs, ocean pout, starfish, and conger eels. This habitat may well contain the greatest densities of lobsters found offshore.

Table 34: American Lobster Habitats and Densities

Habitat	Lobster Densities (nos/square meter)	Lobster Sizes (carapace length = CL)	Source
ESTUARIES			
Mud base with burrows	Up to 20	Small juveniles	Cooper & Uzmann 1980
	< 0.01	Adults	Cooper & Uzmann 1980
Rock, cobble & gravel	> 0.5	Juveniles	Steneck & Wilson 1998
Rock/shell	> 0.75	Adolescents	Steneck & Wilson 1998
SALT MARSHES			
Peat	Up to 5.7		Barshaw & Lavalli 1988
INSHORE HABITATS			
Kelp beds	1.2-1.68	Adolescents (51-61 mm)	Bologna & Steneck 1993
Eelgrass	< 0.04	Juveniles and adolescents	Barshaw & Lavalli 1988
Eelgrass	0.1	80% adolescents	Short et al. 2001
Intertidal zone	0-8.6	Juveniles and adolescents	Cowan 1999
Sand base with rock	3.2	Avg 40 mm	Cooper & Uzmann 1980
Boulders overlaying sand	0.09-0.13		Cooper & Uzmann 1980
Cobbles	Up to 16		Cooper & Uzmann 1980
Bedrock base with rock and boulder overlay	0.1-0.3		Cooper & Uzmann 1980
Mud-shell/rock substrate	0.15		Cooper & Uzmann 1980
Sediment	0.01-0.04	≥50 mm	Geraldi et al. 2009
Cobbles	0.08-0.14	≥50 mm	Geraldi et al. 2009
Ledge	0.04-0.12	≥50 mm	Geraldi et al. 2009
OFFSHORE HABITATS			
Sand base with rock	Not available	Not available	
Clay base with burrows and depressions	Minimum 0.001		Cooper & Uzmann 1980
Mud-clay base with anemones	Minimum 0.001	50-80 mm in depressions	Cooper & Uzmann 1980
SUBMARINE CANYONS			
Canyon rim and walls	0-0.0002	Adolescents and adults	Cooper et al. 1987
Canyon walls	Up to 0.001	Adolescents and adults	Cooper et al. 1987
Rim and head of canyons and at base of walls	0.0005-0.126	Adolescents and adults	Cooper et al. 1987
Pueblo villages	0.0005-0.126	Adolescents and adults	Cooper et al. 1987

Note: For this table, Juvenile lobsters are < 40 mm CL; adolescents 40-70 mm CL; adults >70 mm CL.

6.4.5 Essential Fish Habitat (EFH)

The physical environment that could potentially be affected by this action includes essential fish habitat for fishery resource species in the Greater Atlantic region managed under the authority of the Magnuson-Stevens Act. Because lobsters are harvested using bottom-tending fishing gear (pots and, to a very limited extent, bottom trawls) which do cause some disturbance to benthic habitat features, EFH is described in the Table 35 for those federally-managed species and life stages in the region that inhabit the seafloor in depths that could be adversely affected by the lobster fishery.

Full descriptions and maps of EFH for each species and life stage are available on the NOAA website. In general, EFH for species and life stages that rely on the seafloor for shelter (e.g., from predators), reproduction, or food is vulnerable to disturbance by any type of bottom tending fishing gear. The most vulnerable habitat is more likely to be hard or rough bottom with attached epifauna (NEFMC 2018a and b).

Table 35. Habitat characteristics of Essential Fish Habitat designations for benthic fish and shellfish species managed by the New England and Mid-Atlantic fishery management councils in the Greater Atlantic region, up-dated January 2018

Species	Life Stage	Depth (meters)	Habitat Type and Description
Acadian redfish	Juveniles	50-200 in Gulf of Maine, to 600 on slope	Sub-tidal coastal and offshore rocky reef substrates with associated structure-forming epifauna (e.g., sponges, corals), and soft sediments with cerianthid anemones
Acadian redfish	Adults	140-300 in Gulf of Maine, to 600 on slope	Offshore benthic habitats on finer grained sediments and on variable deposits of gravel, silt, clay, and boulders
American plaice	Juveniles	40-180	Sub-tidal benthic habitats on mud and sand, also found on gravel and sandy substrates bordering bedrock
American plaice	Adults	40-300	Sub-tidal benthic habitats on mud and sand, also gravel and sandy substrates bordering bedrock
Atlantic cod	Juveniles	Mean high water-120	Structurally-complex intertidal and sub-tidal habitats, including eelgrass, mixed sand and gravel, and rocky habitats (gravel pavements, cobble, and boulder) with and without attached macroalgae and emergent epifauna
Atlantic cod	Adults	30-160	Structurally complex sub-tidal hard bottom habitats with gravel, cobble, and boulder substrates with and without emergent epifauna and macroalgae, also sandy substrates and along deeper slopes of ledges
Atlantic halibut	Juveniles & Adults	60-140 and 400-700 on slope	Benthic habitats on sand, gravel, or clay substrates
Atlantic herring	Eggs	5-90	Sub-tidal benthic habitats on coarse sand, pebbles, cobbles, and boulders and/or macroalgae
Atlantic sea scallop	Eggs	18-110	Inshore and offshore benthic habitats (see adults)
Atlantic sea scallop	Larvae	No information	Inshore and offshore pelagic and benthic habitats: pelagic larvae ("spat"), settle on variety of hard surfaces, including shells, pebbles, and gravel and to macroalgae and other benthic organisms such as hydroids
Atlantic sea scallop	Juveniles	18-110	Benthic habitats initially attached to shells, gravel, and small rocks (pebble, cobble), later free-swimming juveniles found in same habitats as adults
Atlantic sea scallop	Adults	18-110	Benthic habitats with sand and gravel substrates
Atlantic surfclams	Juveniles and adults	Surf zone to about 61, abundance low >38	In substrate to depth of 3 ft
Atlantic wolffish	Eggs	<100	Sub-tidal benthic habitats under rocks and boulders in nests
Atlantic wolffish	Juveniles	70-184	Sub-tidal benthic habitats

Species	Life Stage	Depth (meters)	Habitat Type and Description
Atlantic wolffish	Adults	<173	A wide variety of sub-tidal sand and gravel substrates once they leave rocky spawning habitats, but not on muddy bottom
Barndoor skate	Juveniles and adults	40-400 on shelf and to 750 on slope	Sub-tidal benthic habitats on mud, sand, and gravel substrates
Black sea bass	Juveniles and adults	Inshore in summer and spring	Benthic habitats with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas, also offshore clam beds and shell patches in winter
Clearnose skate	Juveniles	0-30	Sub-tidal benthic habitats on mud and sand, but also on gravelly and rocky bottom
Clearnose skate	Adults	0-40	Sub-tidal benthic habitats on mud and sand, but also on gravelly and rocky bottom
Deep-sea red crab	Eggs	320-640	Benthic habitats attached to female crabs
Deep-sea red crab	Juveniles	320-1300 on slope and to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Deep-sea red crab	Adults	320-900 on slope and up to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Golden tilefish	Juveniles and adults	100-300	Burrows in semi-lithified clay substrate, may also utilize rocks, boulders, scour depressions beneath boulders, and exposed rock ledges as shelter
Haddock	Juveniles	40-140 and as shallow as 20 in coastal Gulf of Maine	Sub-tidal benthic habitats on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel
Haddock	Adults	50-160	Sub-tidal benthic habitats on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel and adjacent to boulders and cobbles along the margins of rocky reefs
Little skate	Juveniles	Mean high water-80	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud
Little skate	Adults	Mean high water-100	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud
Longfin inshore squid	Eggs	Generally <50	Bottom habitats attached to variety of hard bottom types, macroalgae, sand, and mud
Monkfish	Juveniles	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on a variety of habitats, including hard sand, pebbles, gravel, broken shells, and soft mud, also seek shelter among rocks with attached algae
Monkfish	Adults	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on hard sand, pebbles, gravel, broken shells, and soft mud, but seem to prefer soft sediments, and, like juveniles, utilize the edges of rocky areas for feeding
Ocean pout	Eggs	<100	Sub-tidal hard bottom habitats in sheltered nests, holes, or rocky crevices
Ocean pout	Juveniles	Mean high water-120	Intertidal and sub-tidal benthic habitats on a wide variety of substrates, including shells, rocks, algae, soft sediments, sand, and gravel
Ocean pout	Adults	20-140	Sub-tidal benthic habitats on mud and sand, particularly in association with structure forming habitat types; i.e. shells, gravel, or boulders
Ocean quahogs	Juveniles and adults	9-244	In substrate to depth of 3 ft
Offshore hake	Juveniles	160-750	Pelagic and benthic habitats
Offshore hake	Adults	200-750	Pelagic and benthic habitats
Pollock	Juveniles	Mean high water-180 in Gulf of Maine, Long Island Sound, and Narragansett Bay; 40-180 on Georges Bank	Intertidal and sub-tidal pelagic and benthic rocky bottom habitats with attached macroalgae, small juveniles in eelgrass beds, older juveniles move into deeper water habitats also occupied by adults
Pollock	Adults	80-300 in Gulf of Maine and on Georges Bank; <80 in Long Island Sound, Cape Cod Bay, and Narragansett Bay	Pelagic and benthic habitats on the tops and edges of offshore banks and shoals with mixed rocky substrates, often with attached macro algae
Red hake	Juveniles	Mean high water-80	Intertidal and sub-tidal soft bottom habitats, esp those that that provide shelter, such as depressions in muddy substrates, eelgrass, macroalgae, shells, anemone and polychaete tubes, on artificial reefs, and in live bivalves (e.g., scallops)
Red hake	Adults	50-750 on shelf and slope, as shallow as 20 inshore	Sub-tidal benthic habitats in shell beds, on soft sediments (usually in depressions), also found on gravel and hard bottom and artificial reefs

Species	Life Stage	Depth (meters)	Habitat Type and Description
Rosette skate	Juveniles and adults	80-400	Benthic habitats with mud and sand substrates
Scup	Juveniles	No information	Benthic habitats, in association with inshore sand and mud substrates, mussel and eelgrass beds
Scup	Adults	No information, generally overwinter offshore	Benthic habitats
Silver hake	Juveniles	40-400 in Gulf of Maine, >10 in Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats in association with sand-waves, flat sand with amphipod tubes, shells, and in biogenic depressions
Silver hake	Adults	>35 in Gulf of Maine, 70-400 on Georges Bank and in the Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats, often in bottom depressions or in association with sand waves and shell fragments, also in mud habitats bordering deep boulder reefs, on over deep boulder reefs in the southwest Gulf of Maine
Smooth skate	Juveniles	100-400 offshore Gulf of Maine, <100 inshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Smooth skate	Adults	100-400 offshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Summer flounder	Juveniles	To maximum 152	Benthic habitats, including inshore estuaries, salt marsh creeks, seagrass beds, mudflats, and open bay areas
Summer flounder	Adults	To maximum 152 in colder months	Benthic habitats
Spiny dogfish	Juveniles	Deep water	Pelagic and epibenthic habitats
Spiny dogfish	Female sub-adults	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male sub-adults	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Female adults	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male adults	Wide depth range	Pelagic and epibenthic habitats
Thorny skate	Juveniles	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 om slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud
Thorny skate	Adults	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 om slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud
White hake	Juveniles	Mean high water – 300	Intertidal and sub-tidal estuarine and marine habitats on fine-grained, sandy substrates in eelgrass, macroalgae, and un-vegetated habitats
White hake	Adults	100-400 offshore Gulf of Maine, >25 inshore Gulf of Maine, to 900 on slope	Sub-tidal benthic habitats on fine-grained, muddy substrates and in mixed soft and rocky habitats
Windowpane flounder	Juveniles	Mean high water – 60	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Windowpane flounder	Adults	Mean high water – 70	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Winter flounder	Eggs	0-5 south of Cape Cod, 0-70 Gulf of Maine and Georges Bank	Sub-tidal estuarine and coastal benthic habitats on mud, muddy sand, sand, gravel, submerged aquatic vegetation, and macroalgae
Winter flounder	Juveniles	Mean high water – 60	Intertidal and sub-tidal benthic habitats on a variety of bottom types, such as mud, sand, rocky substrates with attached macro algae, tidal wetlands, and eelgrass; young-of-the-year juveniles on muddy and sandy sediments in and adjacent to eelgrass and macroalgae, in bottom debris, and in marsh creeks
Winter flounder	Adults	Mean high water – 70	Intertidal and sub-tidal benthic habitats on muddy and sandy substrates, and on hard bottom on offshore banks; for spawning adults, also see eggs
Winter skate	Juveniles	0-90	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud

Species	Life Stage	Depth (meters)	Habitat Type and Description
Winter skate	Adults	0-80	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud
Witch flounder	Juveniles	50-400 and to 1500 on slope	Sub-tidal benthic habitats with mud and muddy sand substrates
Witch flounder	Adults	35-400 and to 1500 on slope	Sub-tidal benthic habitats with mud and muddy sand substrates
Yellowtail flounder	Juveniles	20-80	Sub-tidal benthic habitats on sand and muddy sand
Yellowtail flounder	Adults	25-90	Sub-tidal benthic habitats on sand and sand with mud, shell hash, gravel, and rocks

6.5 Protected Species

Numerous protected species occur the affected environment of the American lobster (Table 36). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972.

Table 36. Species protected under the ESA and/or MMPA that occur in the affected environment of the American lobster fishery[1]

Species	Status	Potentially impacted by this action?
Cetaceans		
North Atlantic right whale (Eubalaena glacialis)	Endangered	Yes
Humpback whale, West Indies DPS (*Megaptera novaeangliae*)	Protected (MMPA)	Yes
Fin whale (Balaenoptera physalus)	Endangered	Yes
Sei whale (Balaenoptera borealis)	Endangered	Yes
Blue whale (Balaenoptera musculus)	Endangered	No
Sperm whale (Physeter microcephalus	Endangered	Yes
Pygmy sperm whale (*Kogia breviceps*)	Protected (MMPA)	No
Dwarf sperm whale (*Kogia sima*)	Protected (MMPA)	No
Minke whale (*Balaenoptera acutorostrata*)	Protected (MMPA)	Yes
Pilot whale (Globicephala spp.)[2]	Protected (MMPA)	No
Risso's dolphin (*Grampus griseus*)	Protected (MMPA)	No
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected (MMPA)	No
Short Beaked Common dolphin (*Delphinus delphis*)	Protected (MMPA)	No
Spotted dolphin (*Stenella frontalis*)	Protected (MMPA)	No
Striped dolphin (*Stenella coeruleoalba*)	Protected (MMPA)	No
Beaked whales (*Ziphius and Mesoplodon spp*)[3]	Protected (MMPA)	No
Bottlenose dolphin (Tursiops truncatus)[4]	Protected (MMPA)	Yes
Harbor porpoise (*Phocoena phocoena*)	Protected (MMPA)	No
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes
Green sea turtle, North Atlantic DPS (*Chelonia mydas*)	Threatened	Yes
Loggerhead sea turtle (*Caretta caretta*), Northwest Atlantic Ocean DPS	Threatened	Yes
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered	No
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Giant Manta Ray (*Manta birostris)*	Threatened	No

Species	Status	Potentially impacted by this action?
Atlantic salmon (*Salmo salar*)	Endangered	No
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	No
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	No
Oceanic Whitetip shark (*Carcharhinus longimanus*)	Threatened	No
Cusk (*Brosme brosme)*	Candidate	No
Pinnipeds		
Harbor seal (*Phoca vitulina*)	Protected	No
Gray seal (*Halichoerus grypus*)	Protected	No
Harp seal (*Phoca groenlandicus*)	Protected	No
Hooded seal (*Cystophora cristata*)	Protected	No
Critical Habitat		
North Atlantic Right Whale	Protected (ESA)	No
Northwest Atlantic DPS of Loggerhead Sea Turtle	Protected (ESA)	No

Notes:
[1] Marine mammal species (cetaceans and pinnipeds) italicized and in bold are considered MMPA strategic stocks. A strategic stock is defined under the MMPA as a marine mammal stock for which: (1) The level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; and/or (3) is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (Section 3 of the MMPA of 1972).
[2] There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp*.
[3] There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier's (*Ziphius cavirostris*), blainville's (*Mesoplodon densirostris*), gervais' (*Mesoplodon europaeus*), sowerbys' (*Mesoplodon bidens*), and trues' (*Mesoplodon mirus*) beaked whales. Species of *Mesoplodon*; however, are difficult to identify at sea, and therefore, much of the available characterization for beaked whales is to the genus level only.
[4] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.

Cusk is considered a "candidate species" under the ESA. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and also include those species for which NMFS has initiated an ESA status review through an announcement in the *Federal Register*. Once a species is proposed for listing the conference provisions of the ESA apply (see § 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, cusk will not be discussed further in this and the following sections. For additional information on these species, please visit the GARFO candidate species website.

6.5.1 Species and Critical Habitat Not Likely to be Impacted by the Proposed Action

Based on available information, it has been determined that this action is not likely to impact multiple ESA listed and/or marine mammal protected species or any designated critical habitat (Table 36). This determination has been made because either the occurrence of the species is not known to overlap with the area primarily affected by the action and/or based on the most recent 10 years of observer, stranding, and/or marine mammal serious injury and mortality reports; or there have been no observed or documented interactions between the species and the primary gear type (i.e., trap/pot gear) used to prosecute the American lobster fishery (Greater Atlantic Region (GAR) Marine Animal Incident

Database, unpublished data; NMFS Marine Mammal Stock Assessment Reports (SARs) for the Atlantic Region; NMFS NEFSC observer/sea sampling database, unpublished data; NMFS NEFSC reference documents (marine mammal serious injury and mortality reports); MMPA List of Fisheries (LOF); NMFS 2021a).[26] In the case of critical habitat, this determination has been made because the action will not affect the essential physical and biological features of critical habitat identified in Table 36 and therefore, will not result in the destruction or adverse modification of any species critical habitat (NMFS 2021a).

6.5.2 Species Potentially Impacted by the Proposed Action

Table 36 has a list of protected species of sea turtle, marine mammal, and fish species present in the affected environment of the American lobster fishery, and that may also be impacted by the operation of this fishery; that is, have the potential to become entangled or bycaught in the fishing gear used to prosecute the fishery. To aid in the identification of MMPA protected species potentially impacted by the action, NMFS Marine Mammal SARs for the Atlantic Region, MMPA List of Fisheries (LOF), NMFS (2021b), NMFS NEFSC observer/sea sampling database (unpublished data), and NMFS NEFSC reference documents (marine mammal serious injury and mortality reports) were referenced.

To help identify ESA listed species potentially impacted by the action, we queried the NMFS NEFSC observer/sea sampling (2010-2019), Sea Turtle Disentanglement Network (2010-2019), and the GAR Marine Animal Incident (2010-2019) databases for interactions, as well as reviewed the May 27, 2021, Biological Opinion issued by NMFS. The 2021 Opinion considered the effects of the NMFS' authorization of ten fishery management plans (FMP),[27] including American lobster, NMFS' North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2, on ESA-listed species and designated critical habitat. The Opinion determined that the proposed action may adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right, fin, sei, or sperm whales; the Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, leatherback, Kemp's ridley, or North Atlantic DPS of green sea turtles; any of the five DPSs of Atlantic sturgeon; GOM DPS Atlantic salmon; or giant manta rays. The Opinion also concluded that the proposed action is not likely to adversely affect designated critical habitat for North Atlantic right whales, the Northwest Atlantic Ocean DPS of loggerhead sea turtles, U.S. DPS of smalltooth sawfish, Johnson's seagrass, or elkhorn and staghorn corals. An Incidental Take Statement (ITS) was issued in the Opinion. The ITS includes reasonable and prudent measures and their implementing terms and conditions, which NMFS determined are necessary or appropriate to minimize impacts of the incidental take in the fisheries assessed in this Opinion.

As the primary concern for both MMPA-protected and ESA-listed species is the potential for the fishery to interact (e.g., bycatch, entanglement) with these species it is necessary to consider: (1) Species occurrence in the affected environment of the fishery and how the fishery will overlap in time and space with this occurrence; and (2) data on documented and/or observed records of protected species interaction with particular fishing gear types, to understand the potential risk of an interaction. Information on species occurrence in the affected environment of the lobster fishery is provided in the following section, while information on protected species interactions with lobster fishery gear is in Section 6.5.3.

[26] For marine mammals protected under the MMPA the most recent 10 years of observer, stranding, and/or marine mammal serious injury and mortality reports are from 2009-2018; however, the GAR Marine Animal Incident Database (unpublished data) contains large whale entanglement reports for 2019. For ESA listed species, information on observer or documented interactions with fishing gear is from 2010-2019.

[27] The ten FMPs considered in the May 27, 2021, Biological Opinion include the: (1) American lobster; (2) Atlantic bluefish; (3) Atlantic deep-sea red crab; (4) mackerel/squid/butterfish; (5) monkfish; (6) Northeast multispecies; (7) Northeast skate complex; (8) spiny dogfish; (9) summer flounder/scup/black sea bass; and (10) Jonah crab FMPs.

6.5.2.1 Sea Turtles

Below is a brief summary of the occurrence and distribution of sea turtles in the affected environment of the American lobster fishery. Additional background information on the range-wide status of affected sea turtles species, as well as a description and life history of each of these species, can be found in a number of published documents, including NMFS (2021a); sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; Turtle Expert Working Group [TEWG] 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b; Conant *et al*. 2009; NMFS and USFWS 2013), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992, 1998a, 2020), Kemp's ridley sea turtle (NMFS *et al*. 2011), and green sea turtle (NMFS and USFWS 1991, 1998b).

Status and Trends

Four sea turtle species have the potential to be impacted by the proposed action: Northwest Atlantic Ocean DPS of Loggerhead, Kemp's ridley, North Atlantic DPS of green, and leatherback sea turtles (Table 36). Although stock assessments and similar reviews have been completed for sea turtles none have been able to develop a reliable estimate of absolute population size. As a result, nest counts are used to inform population trends for sea turtle species.

For the Northwest Atlantic Ocean DPS of loggerhead sea turtles, there are five unique recovery units that comprise the DPS. Nesting trends for each of these recovery units are variable; however, Florida index nesting beaches comprise most of the nesting in the DPS. Overall, short-term trends for loggerhead sea turtles (Northwest Atlantic Ocean DPS) have shown increases; however, over the long-term the DPS is considered stable (NMFS 2021a).

For Kemp's ridley sea turtles, from 1980 through 2003, the number of nests at three primary nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos) increased 15 percent annually (Heppell et al. 2005); however, due to recent declines in nest counts, decreased survival of immature and adult sea turtles, and updated population modeling, this rate is not expected to continue and therefore, the overall trend is unclear (NMFS and USFWS 2015; Caillouett et al. 2018). In 2019, there were 11,090 nests, a 37.61% decrease from 2018 and a 54.89% decrease from 2017, which had the highest number (24,587) of nests; the reason for this recent decline is uncertain (see NMFS 2021a). Given this and continued anthropogenic threats to the species, according to NMFS (2021a), the species resilience to future perturbation is low.

The North Atlantic DPS of green sea turtle, overall, is showing a positive trend in nesting; however, increases in nester abundance for the North Atlantic DPS in recent years must be viewed cautiously as the datasets represent a fraction of a green sea turtle generation which is between 30 and 40 years (Seminoff et al. 2015). While anthropogenic threats to this species continue, taking into consideration the best available information on the species, NMFS (2021a), concluded that the North Atlantic DPS appears to be somewhat resilient to future perturbations.

Leatherback turtle nesting in the Northwest Atlantic is showing an overall negative trend, with the most notable decrease occurring during the most recent time frame of 2008 to 2017 (NW Atlantic Leatherback Working Group 2018). The leatherback status review in 2020 concluded that leatherbacks are exhibiting an overall decreasing trend in annual nesting activity (NMFS and USFWS, 2020). Given continued anthropogenic threats to the species, according to NMFS (2021a), the species' resilience to additional perturbation both within the Northwest Atlantic and worldwide is low.

Occurrence and Distribution

Hard-shelled sea turtles - In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, MA, although their presence varies with the seasons due to changes in water temperature (Braun-McNeill et al. 2008; Braun & Epperly 1996; Epperly et al. 1995a,b; Mitchell et al. 2003; Shoop & Kenney 1992; TEWG 2009; Blumenthal et al. 2006; Braun-McNeill & Epperly 2002; Griffin et al. 2013; Hawkes et al. 2006; Hawkes et al. 2011; Mansfield et al. 2009; McClellan & Read 2007; Mitchell et al. 2003; Morreale & Standora 2005). As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Braun-McNeill & Epperly 2004; Epperly et al. 1995a,b,c; Griffin et al. 2013; Morreale & Standora 2005), occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the GOM in June (Shoop & Kenney 1992). The trend is reversed in the fall as water temperatures cool. The large majority leave the GOM by September, but some remain in Mid-Atlantic and Northeast areas until late fall (i.e., November). By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further south, although it should be noted that hard-shelled sea turtles can occur year-round in waters off Cape Hatteras and south (Epperly et al. 1995b; Griffin et al. 2013; Hawkes et al. 2011; Shoop & Kenney 1992).

Leatherback sea turtles - Leatherbacks, a pelagic species, are known to use coastal waters of the U.S. continental shelf and to have a greater tolerance for colder water than hard-shelled sea turtles (James et al. 2005; Eckert et al. 2006; Murphy et al. 2006; NMFS and USFWS 2013b; Dodge et al. 2014). Leatherback sea turtles engage in routine migrations between northern temperate and tropical waters (NMFS and USFWS 1992; James et al. 2005; James et al. 2006; Dodge et al. 2014). They are found in more northern waters (i.e., GOM) later in the year (i.e., similar time frame as hard-shelled sea turtles), with most leaving the Northwest Atlantic shelves by mid-November (James et al. 2005; James et al. 2006; Dodge et al. 2014).

6.5.2.2 Large Whales

Status and Trends

Five large whale species have the potential to be impacted by the proposed action: Humpback, North Atlantic right, fin, sei, sperm, and minke whales (Table 36). Review of large whale stock assessment reports covering the period of 2009 through 2018, indicate a decreasing trend for the North Atlantic right whale population; however, for fin, humpback, minke and sei whales, it is unknown what the population trajectory is as a trend analysis has not been conducted (Hayes et al. 2017; Hayes et al. 2018; Hayes et al. 2019; Hayes et al. 2020; Hayes et al. 2021; Waring et al. 2016). For additional information on the status of humpback, North Atlantic right, fin, sei, sperm, and minke whales, refer to the Marine Mammal SARs for the Atlantic Region.

Occurrence and Distribution

As provided in Table 36, North Atlantic right, humpback, fin, sei, sperm, and minke whales occur in the Northwest Atlantic Ocean. As the affected environment of the American lobster fishery occurs in waters north of 35ºN, and whales may be present in these waters throughout the year, the American lobster fishery and large whales are likely to co-occur in the affected area. To further assist in understanding how the American lobster fishery overlaps in time and space with the occurrence of large whales, Table 37 provides an overview of species occurrence and distribution in the affected environment of the fishery.

For additional information on North Atlantic right, humpback, fin, sei, sperm, and minke whales refer to: NMFS Marine Mammal SARs for the Atlantic Region.

Table 37. Large whale occurrence, distribution, and habitat use in the affected environment of the American lobster fishery (SNE=Southern New England; GOM=Gulf of Maine; GB=Georges Bank).

Species	Occurrence/Distribution/Habitat Use in the Affected Environment
North Atlantic Right Whale	• Predominantly occupy waters of the continental shelf, but, based on passive acoustic and telemetry data, are also known to make lengthy excursions into deep waters off the shelf. • Visual and acoustic data demonstrate broad scale, year round presence along the U.S. eastern seaboard (e.g., GOM, New Jersey, and Virginia). • Surveys have demonstrated the existence of several areas where North Atlantic right whales congregate seasonally, including Cape Cod Bay; Massachusetts Bay; and the continental shelf south of New England. Although whales can be found consistently in particular locations throughout their range, there is a high inter-annual variability in right whale use of some habitats. For instance, since 2010, acoustic and visual surveys indicate a shift in habitat use patterns. For instance: > Fewer individuals are detected in the Great South Channel; > increase in the number of individuals using Cape Cod Bay in the spring; >apparent abandonment of Jordan Basin (GOM) in the winter; and, Large increase in the numbers of whales detected in a region south of Martha's Vineyard and Nantucket Islands (esp. February through April). • New England waters (e.g., margins of GB, GOM (including Cashes Ledge, Platts Bank, Wilkinson Basin, Georges Basin) are important feeding habitats. • Mid-Atlantic waters: Migratory corridor to/from northern (high latitude) foraging and southern calving grounds.
Humpback	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • New England waters (GOM and GB) = Foraging Grounds (~March- November); however, acoustic detections of humpbacks indicate year-round presence in New England waters, including the waters of Stellwagen Bank. • Mid-Atlantic waters: Migratory pathway to/from northern (high latitude) foraging and southern (West Indies) calving grounds. Increasing evidence that mid-Atlantic areas are becoming an important habitat for juvenile humpback whales. • Since 2011, increased sightings of humpback whales in the New York-New Jersey Harbor Estuary, in waters off Long Island, and along the shelf break east of New York and New Jersey. • Increasing visual and acoustic evidence of whales remaining in mid- and high-latitudes throughout the winter (e.g., Mid- Atlantic: waters near Chesapeake and Delaware Bays, peak presence about January through March; Massachusetts Bay: peak presence about March-May and September-December).
Fin	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year; recent review of sighting data shows evidence that, while densities vary seasonally, fin whales are present in every season throughout most of the EEZ north of 35ºN. • Mid-Atlantic waters: › Migratory pathway to/from northern (high latitude) foraging and southern (low latitude) calving grounds; > Foraging ground in Northern Mid-Atlantic Bight; and › Possible calving area (October-January). • New England waters (GOM and GB) = Major Foraging Ground
Sei	• Primarily found in deep waters along the shelf edge, shelf break, and ocean basins between banks.; however incursions into shallower, shelf waters do occur (e.g., Stellwagen Bank, Great South Channel, waters south of Nantucket, on Georges Bank).

	• Spring through summer, found in greatest densities in the Gulf of Maine and Georges Bank. Sightings concentrated along the northern, eastern (into Northeast Channel) and southwestern (in the area of Hydrographer Canyon) edge of Georges Bank, and south of Nantucket, MA. • The wintering habitat remains largely unknown. Passive acoustic monitoring conducted in 2015-2016 off Georges Bank detected sei whales calls from late fall through the winter along the southern Georges Bank region (off Heezen and Oceanographer Canyons).
Sperm	• Distributed on the continental shelf edge, over the continental slope, and into mid-ocean regions. • Seasonal Occurrence in the U.S. EEZ: >**Winter**: concentrated east and northeast of Cape Hatteras; >**Spring**: center of distribution shifts northward to east of Delaware and Virginia, and is widespread throughout the central portion of the mid-Atlantic bight and the southern portion of Georges Bank; >**Summer**: similar distribution to spring, but also includes the area east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100-m isobath) south of New England; and, >**Fall**: occur in high levels south of New England, on the continental shelf. Also occur along continental shelf edge in the mid-Atlantic bight.
Minke	• Widely distributed within the U.S. EEZ. • Spring to Fall: widespread (acoustic) occurrence on the continental shelf; most abundant in New England waters during this period of time. • September to April: high (acoustic) occurrence in deep-ocean waters.
Sources: Baumgartner *et al*. 2007; Baumgartner *et al*. 2011; Baumgartner and Mate 2005; Bort *et al*. 2015; Brown *et al*. 2002, 2017; CETAP 1982; Cholewiak et al. 2018; Clapham *et al*. 1993; Clark and Clapham 2004; Cole *et al*. 2013; Davis *et al.* 2017, 2020; Good 2008; Hain *et al.* 1992; Hamilton and Mayo 1990; Hayes *et al*. 2017, 2018, 2019, 2020, 2021; Kenney *et al.* 1986, 1995; Khan *et al*. 2009, 2010, 2011, 2012; Kraus et al. 2016; Leiter *et al*. 2017; Mate *et al*. 1997; Mayo et al. 2018; McLellan *et al*. 2004; Morano et al. 2012; Murray et al. 2013; NMFS 1991, 2005, 2010, 2011, 2012; 2015, 2021a,b; NOAA 2008; Pace and Merrick 2008; Palka et al. 2017; Palka 2020;Payne *et al*. 1984; Payne *et al*.1990; Pendleton *et al*. 2009; Record *et al*. 2019; Risch *et al*. 2013; Robbins 2007; Roberts et al. 2016; Salisbury et al. 2016; Schevill *et al*. 1986; Stanistreet et al. 2018; Stone et al. 2017; Swingle *et al*. 1993; Vu *et al*. 2012; Watkins and Schevill 1982; Whitt et al. 2013; Winn *et al.* 1986; 81 FR 4837 (January 27, 2016); 86 FR 51970 (September 17, 2021).	

6.5.2.3 Small Cetaceans

As provided in Table 36, the only small cetacean that co-occurs with, and has the potential to be affected by the American lobster fishery are the following stocks of bottlenose dolphin: Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal. To further assist in understanding how the American lobster fishery may overlap in time and space with the occurrence of bottlenose dolphin stocks, a general overview of species occurrence and distribution in the area of operation for the American lobster fishery is provided in Table 38. For additional information on the biology, status, and range wide distribution of each bottlenose dolphin stock, refer to NMFS Marine Mammal SARs for the Atlantic Region.

Table 38. Bottlenose dolphin occurrence and distribution in the affected environment of the American lobster fishery

Species	Prevalence and Approximate Months of Occurrence (if known)
Bottlenose Dolphin	**Western North Atlantic Offshore Stock** ○ Distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic from Georges Bank to the Florida Keys. ○ Depths of occurrence: ≥25 meters.

Species	Prevalence and Approximate Months of Occurrence (if known)
	Western North Atlantic Northern Migratory Stock o Warm water months (best described by July-August): Stock occupies coastal waters from the shoreline to approximately the 20-meter isobath between Assateague, Virginia, and Long Island, New York. o Cold water months (best described by January-February): Stock occupies coastal waters from the shoreline to approximately the 200-meter isobath between Cape Lookout, North Carolina, to the North Carolina /Virginia border. **Western North Atlantic Southern Migratory Stock** o Spring and Summer (April-August): Stock occupies coastal waters from the shoreline to approximately the 20-meter isobath between Cape Hatteras, North Carolina, to Assateague, Virginia (including Chesapeake Bay). o Fall and Winter (October-March): Stock occupies coastal waters from the shoreline to approximately the 200-meter isobath between southern, North Carolina (south of Cape Lookout) to northern Florida.
Sources: NMFS Marine Mammal SARs for the Atlantic Region.	

6.5.3 Gear Interactions and Protected Species

The American lobster commercial fishery is prosecuted with trap/pot gear. Species of cetaceans and sea turtles (see Table 36) are known to interact with this gear type. Available information on gear interactions with a given species (or species group) is provided in the sections below. Please note, these sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used in the American lobster fishery and their associated interaction risk to the species under consideration.

6.5.3.1 Sea Turtles

Leatherback, loggerhead, green, and kemp's ridley sea turtles are at risk of interacting with trap/pot gear; however, review of data provided by the NEFSC Observer Program, VTR, and the NMFS Greater Atlantic Region (GAR) Sea Turtle Disentanglement Network (STDN), indicate that interactions between trap/pot gear and Kemp's ridley and green sea turtles are rare in the Greater Atlantic Region (NMFS 2021a). Sea turtle interactions with pot/trap gear are primarily associated with entanglement in vertical lines associated with this gear type; however, sea turtles can also become entangled in groundlines or surface system lines of pot/trap gear (Sea Turtle Disentanglement Network (STDN), unpublished data). Records of stranded or entangled sea turtles indicate that fishing gear can wrap around the neck, flipper, or body of the sea turtle and severely restrict swimming or feeding (Balazs 1985; STDN, unpublished data). As a result, sea turtles can incur serious injuries and in some case, mortality immediately or at a later time.

Given few trap/pot trips have been observed by the NEFSC Observer Program over the last 10 years, and VTR reporting of incidences of interactions with sea turtles are limited, most reports of sea turtle entanglements in trap/pot gear are documented by the NMFS GAR STDN. Based on this, the STDN database, a component of the Sea Turtle Stranding and Salvage Network, provides the most complete and best available dataset on sea entanglements in the GAR. Confirmed and probable entanglement cases in the STDN database from 2010-2019 were reviewed. Over this timeframe, 270 sea turtle entanglements in vertical line gear (known and unknown fishery) in the Greater Atlantic Region (Maine through Virginia) were reported and classified with a probable or confirmed, high confidence rating. Of the 270 cases assessed, 255 involved leatherback sea turtles and 15 involved loggerhead sea turtles (NMFS 2021a).

6.5.3.2 Marine Mammals

Depending on species, marine mammals have been observed seriously injured or killed in trap/pot gear. Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery (Table 39).[28] The American lobster fishery is considered a Category I trap/pot fishery.

Table 39. LOF Classification Categories

Category	Level of incidental mortality or serious injury of marine mammals	Annual mortality and serious injury of a stock in a given fishery is…
Category I	frequent	≥50% of the potential biological removal (PBR) level
Category II	Occasional	between 1% and 50% of the PBR level
Category III	remote likelihood, or no known	≤1% of the PBR level

The categorization in the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA such as registration, observer coverage, and take reduction plan requirements. Individuals fishing in Category I or II fisheries must comply with requirements of any applicable take reduction plan.

Large Whales

Large whale interactions (entanglements) with fishing gear have been observed and documented in the waters of the Northwest Atlantic.29 Information available on all interactions (e.g., entanglement, vessel strike, unknown cause) with large whales comes from reports documented in the GARFO Marine Animal Incident Database (unpublished data). The level of information collected for each case varies, but may include details on the animal, gear, and any other information about the interaction (e.g., location, description, etc.). Each case is evaluated using defined criteria to assign the case to an injury/information category using all available information and scientific judgement. In this way, the injury severity and cause of injury/death for the event is evaluated, with serious injury and mortality determinations issued by the NEFSC.[30]

Based on the best available information, the greatest entanglement risk to large whales is posed by fixed gear used in trap/pot or sink gillnet fisheries (Angliss and Demaster 1998; Cassoff et al. 2011; Kenney and Hartley 2001; Knowlton and Kraus 2001; Hartley et al. 2003; Johnson et al. 2005;Whittingham et al. 2005a,b; Knowlton et al. 2012; NMFS 2021b; Hamilton and Kraus 2019; Henry et al. 2014; Henry et al. 2015; Henry et al. 2016; Henry et al. 2017; Henry et al. 2019; Henry et al. 2020; Henry et al. 2021; Sharp et al. 2019; Pace et al. 2021; see NMFS Marine Mammal SARs for the Atlantic Region). Specifically, while foraging or transiting, large whales are at risk of becoming entangled in vertical endlines, buoy lines, or groundlines of gillnet and pot/trap gear, as well as the net panels of gillnet gear that rise into the water column (Baumgartner et al. 2017; Cassoff et al. 2011; Hamilton and Kraus 2019; Hartley et al. 2003; Henry et al. 2014; Henry et al. 2015; Henry et al. 2016; Henry et al. 2017; Henry et al. 2019; Henry

[28] The most recent LOF was issued January 14, 2021; 86 FR 3028

[29] **NMFS Atlantic Large Whale Entanglement Reports**: For years prior to 2014, contact David Morin, Large Whale Disentanglement Coordinator, David.Morin@NOAA.gov; GAR Marine Animal Incident Database (unpublished data); **NMFS Marine Mammal Stock Assessment Reports for the Atlantic Region**; **NMFS NEFSC Marine Mammal Serious Injury and Morality Reference Documents**; **MMPA List of Fisheries**.

[30] Serious Injury and Mortality Determinations for Baleen Whale Stocks along the Gulf of Mexico, United States East Coast, and Atlantic Canadian Provinces.

et al. 2020; Henry et al. 2021; Johnson et al. 2005; Kenney and Hartley 2001; Knowlton and Kraus 2001;Knowlton et al. 2012; NMFS 2021b; Whittingham et al. 2005a,b; see NMFS Marine Mammal SARs for the Atlantic Region).[31] Large whale interactions (entanglements) with these features of trap/pot and/or sink gillnet gear often result in the serious injury or mortality to the whale (Angliss and Demaster 1998; Cassoff et al. 2011; Henry et al. 2014, Henry et al. 2015, Henry et al. 2016; Henry et al. 2017; Henry et al. 2019; Henry et al. 2020; Henry et al. 2021; Knowlton and Kraus 2001, Knowlton et al. 2012; Moore and Van der Hoop 2012; NMFS 2014; Pettis et al. 2021; Sharp et al. 2019; van der Hoop et al. 2016; van der Hoop et al. 2017). In fact, review of Atlantic coast-wide causes of large whale human interaction incidents between 2010 and 2019 shows that entanglement is the highest cause of mortality and serious injury for North Atlantic right, humpback, fin, and minke whales in those instances when cause of death could be determined (NMFS 2021b). As many entanglements, and therefore, serious injury or mortality events, go unobserved, and because the gear type, fishery, and/or country of origin for reported entanglement events are often not traceable, the rate of large whale entanglement, and thus, rate of serious injury and mortality due to entanglement, are likely underestimated (Hamilton et al. 2018; Hamilton et al. 2019; Knowlton et al. 2012; NMFS 2021b; Pace et al. 2017; Robbins 2009).

As noted above, pursuant to the MMPA, NMFS publishes a LOF annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injurious and mortalities of marine mammals in each fishery. Large whales, in particular, humpback, fin, minke, and North Atlantic right whales, are known to interact with Category I and II fisheries in the Northwest Atlantic Ocean. As fin, and North Atlantic right whales are listed as endangered under the ESA, these species are considered strategic stocks under the MMPA.[32] Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan for any strategic marine mammal stock that interacts with Category I or II fisheries. In response to its obligations under the MMPA, in 1996, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) to develop a plan (Atlantic Large Whale Take Reduction Plan (ALWTRP)) to reduce serious injury to, or mortality of large whales, specifically, humpback, fin, and North Atlantic right whales, due to incidental entanglement in U.S. commercial fishing gear.[33] In 1997, the ALWTRP was implemented; however, since 1997, it has been modified as NMFS and the ALWTRT learn more about why whales become entangled and how fishing practices might be modified to reduce the risk of entanglement. In 2021, adjustments to Plan were implemented and are summarized online.

The Plan consists of regulatory (e.g., universal gear requirements, modifications, and requirements; area- and season- specific gear modification requirements and restrictions; time/area closures) and non-regulatory measures (e.g., gear research and development, disentanglement, education and outreach) that, in combination, seek to assist in the recovery of North Atlantic right, humpback, and fin whales by addressing and mitigating the risk of entanglement in gear employed by commercial fisheries, specifically trap/pot and gillnet fisheries. The ALWTRP recognizes trap/pot and gillnet Management Areas in Northeast, Mid-Atlantic, and Southeast regions of the U.S, and identifies gear modification requirements and restrictions for Category I and II gillnet and trap/pot fisheries in these regions; these Category I and II

[31] Through the ALWTRP, regulations have been implemented to reduce the risk of entanglement in in vertical endlines, buoy lines, or groundlines of gillnet and pot/trap gear, as well as the net panels of gillnet gear. ALWTRP regulations currently in effect are summarized online.
[32] A strategic stock is defined under the MMPA as a marine mammal stock: for which the level of direct human-caused mortality exceeds the potential biological removal level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.
[33] The measures identified in the ALWTRP are also beneficial to the survival of the minke whale, which are also known to be incidentally taken in commercial fishing gear.

fisheries must comply with all regulations of the Plan.[34]. For further details on the Plan, please refer to our website.

Small Cetaceans

Over the past several years, observer coverage has been limited for fisheries prosecuted with trap/pot gear. In the absence of extensive observer data for these fisheries, stranding data provides the next best source of information on species interactions with trap pot gear. It is important to note; however, stranding data underestimates the extent of human-related mortality and serious injury because not all of the marine mammals that die or are seriously injured in human interactions are discovered, reported, or show signs of entanglement. Additionally, if gear is present, it is often difficult to definitively attribute the animal's death or serious injury to the gear interaction, or to a specific fishery. As a result, the conclusions below should be taken with these considerations in mind, and with an understanding that interactions may occur more frequently than what we are able to detect at this time.

Stranded bottlenose dolphin (see Table 36) entangled in trap/pot gear have been documented (see NMFS Marine Mammal SARs for the Atlantic Region). Although the trap/pot gear involved in these cases were identified to the blue crab fishery, given the general similarities between the gear (e.g., traps and vertical buoy lines), there is the potential for these small cetaceans to interact with pot/trap gear used in this fishery. Reviewing the most recent 10 years (2009-2018) of stranding data provided in the NMFS Marine Mammal SARs for the Atlantic Region, estimated mean annual mortality for each stock due to interactions with trap/pot gear was no more than approximately one animal. Based on this and the best available information, trap/pot gear is expected to pose a low interaction, and thus, serious injury and mortality risk to small cetaceans (i.e., bottlenose dolphins).

7.0 Environmental Consequences of the Alternatives

7.1 Introduction

Section 5 reviews the alternatives that are the subject of this evaluation, establishes criteria for evaluating the impact of each alternative on the VECs, identified in Section 6, and discusses impacts. This section reviews the VECs and provides definitions that will be used in the impact assessment.

This analysis considers impacts to 5 VECs:

Human Communities/Social-Economic Environment: This VEC includes impacts to people's way of life, traditions, and communities. These social and economic impacts may be driven by changes in fishery flexibility, opportunity, stability, certainty, safety, and other factors. Impacts would most likely be experienced across communities, gear cohorts, and vessel size classes. Socioeconomic impacts are considered in relation to potential changes in landings and prices, and by extension, revenues, compared the current fishery conditions. Alternatives which could lead to increased availability of target species and/or an increase in CPUE could lead to increased landings. Alternatives which could result in an increase in landings are generally considered to have positive socioeconomic impacts because they could result in increased revenues; however, if an increase in landings leads to a decrease in price or a decrease in abundance for any of the landed species, then negative socioeconomic impacts could occur. Section 6.1 describes the current conditions in the potentially impacted communities.

[34] The fisheries currently regulated under the ALWTRP include: Northeast/Mid-Atlantic American lobster trap/pot; Atlantic blue crab trap/pot; Atlantic mixed species trap/pot; Northeast sink gillnet; Northeast anchored float gillnet; Northeast drift gillnet; Mid-Atlantic gillnet; Southeastern U.S. Atlantic shark gillnet; and Southeast Atlantic gillnet .

Target species: For the purpose of this analysis, the target species VEC includes American lobster managed under the Commission's Lobster ISFMP. In general, alternatives which may result in a less sustainable population compared to the current condition of the VEC would result in negative impacts for those species by resulting in an increase in fishing mortality. Conversely, alternatives which may result in more sustainable population may result in positive impacts for those species by resulting in a decrease in fishing mortality. Section 6.2 describes the current condition this stock.

Other Affected Species: For the purposes of this analysis, the other affected species includes bycatch and bait, including Jonah crab, red crab, and herring, skate, Acadian redfish, and menhaden. Section 6.3 also describes the current condition of these species.

Physical Environment: For the purpose of this analysis the physical environment VEC consists of general habitat, the physical environment, and EFH in the Greater Atlantic region. The Sustainable Fisheries Act defines EFH as "[t]hose waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." For the physical environment and habitat, alternatives that improve the quality or quantity of habitat are expected to have positive impacts. Alternatives that degrade the quality or quantity, or increase disturbance of habitat are expected to have negative impacts. A reduction in fishing effort is likely to decrease the time that fishing gear is in the water, thus reducing the potential for interactions between fishing gear and habitat. However, most habitat areas where lobsters are fished have been heavily fished by multiple fishing fleets over many decades and are unlikely to see a measurable improvement in their condition in response to a short-term decrease in effort for an individual fishery. Section 6.4 describes the conditions of the physical environment.

Protected Resources: This VEC includes species under NMFS' jurisdiction which are afforded protection under the ESA (i.e., for those designated as threatened or endangered) and/or the MMPA. For protected species, consideration is given to both ESA-listed species and MMPA-protected species. ESA-listed species include populations of fish, marine mammals, or turtles at risk of extinction (endangered) or endangerment (threatened). For endangered or threatened species, any action that results in interactions with or take of ESA-listed resources is expected to have some level of negative impacts, including actions that reduce interactions. Actions expected to result in positive impacts on ESA-listed species include only those that contain specific measures to ensure no interactions with protected species (i.e., no take). By definition, all species listed under the ESA are in poor condition and any take has the potential to negatively impact that species' recovery. Under the MMPA, the stock condition of each protected species varies, but all are in need of protection.

For marine mammal stocks/species that have their potential biological removal (PBR) level reached or exceeded, some level of negative impacts would be expected from any alternative that has the potential to interact with these species or stocks. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), actions not expected to change fishing behavior or effort such that interaction risks increase relative to what has been in the fishery previously, may have positive impacts by maintaining takes below the PBR level and approaching the Zero Mortality Rate Goal. Thus, the overall impacts on the protected resources VEC for each alternative take into account impacts on ESA-listed species, impacts on marine mammal stocks in good condition (i.e., PBR level has not been exceeded), and marine mammal stocks that have exceeded or are in danger of exceeding their PBR level. Section 6.5 describes the current condition of these protected resources.

This EA evaluates the potential impacts to the VECs using the criteria outlined in Table 41. Resource conditions describe the baseline for each VEC; it should be noted that the baselines are not consistent across VECs, but vary to capture environmental conditions and statutory definitions and requirements. Due to the large number of management measures and alternatives, this EA is structured so that it

evaluates the impacts of each alternative by VEC. Said another way, each VEC will contain a complete analysis of all alternatives. Impacts from all alternatives are judged relative to the baseline conditions, as described in Section 6 and compared to each other.

Table 40. General definitions for impacts and qualifiers relative to resource condition (i.e., baseline).

General Definitions				
VEC	**Resource Condition**	**Impact of Action**		
		Positive (+)	Negative (-)	No Impact (0)
Target and Other Affected Species	Overfished status defined by the Magnuson-Stevens Act	Alternatives that would maintain stock status above an overfished condition*	Alternatives that would maintain or result in an overfished condition*	Alternatives that do not impact stock / populations
Protected Species: ESA listed / MMPA Protected	Populations at risk of extinction (endangered) or endangerment (threatened) / Stock health may vary but populations remain impacted	Alternatives that contain specific measures to ensure no interactions with protected species (e.g., no take) / Alternatives that will maintain takes below PBR and approaching the Zero Mortality Rate Goal	Alternatives that result in interactions/take of listed resources, including actions that reduce interactions / Alternatives that result in interactions with/take of marine mammal species that could result in takes above PBR	Alternatives that do not impact ESA listed or MMPA protected species
Physical Environment	Many habitats degraded from historical effort	Alternatives that improve the quality or quantity of habitat	Alternatives that degrade the quality, quantity or increase disturbance of habitat	Alternatives that do not impact habitat quality
Human Communities/ Socioeconomic Environment	Highly variable but generally stable in recent years (see condition of the resources table for details)	Alternatives that increase revenue and social well-being of fishermen and/or communities	Alternatives that decrease revenue and social well-being of fishermen and/or communities	Alternatives that do not impact revenue and social well-being of fishermen and/or communities
	Impact Qualifiers			
A range of impact qualifiers is used to indicate any existing uncertainty	Negligible	To such a small degree to be indistinguishable from no impact		
	Slight (sl), as in slight positive or slight negative)	To a lesser degree / minor		
	No qualifier or moderate (m), as in positive or negative	To an average degree (i.e., more than "slight", but not "high")		
	High (H), as in high positive or high negative	To a substantial degree (not significant unless stated)		
	Significant (in the case of an EIS)	Affecting the resource condition to a great degree, see 40 CFR 1508.27.		
	Likely	Some degree of uncertainty associated with the impact		
*Actions that will substantially increase or decrease stock size, but do not change a stock status may have different impacts depending on the particular action and stock. Meaningful differences between alternatives may be illustrated by using another resource attribute aside from the Magnuson-Stevens Act status, but this must be justified within the impact analysis.				

7.2 Impacts of the Alternatives on Human Communities/Social-Economic Environment

7.2.1 Area 2 Alternatives

7.2.1.1 No Action

The no action alternative in Area 2 is expected to result in no short term impacts, and slight negative on the human communities/the social-economic environment. In general, no short-term impacts would be expected because all lobstermen with a Federal area 2 allocation would be allowed to continue to maintain their current allocations. Permit holders would remain unrestricted in the number of lobster permits that can be owned or by an aggregate Area 2 trap allocation and no one with a stake in the fishery

would need to make any changes to their fishing operation. Under the no action, permit holders with Area 2 trap allocations may continue to buy and sell allocation through the annual trap transfer process in order to optimize the size of their businesses. Those intending to buy into the Area 2 trap fishery would continue to have the opportunity to purchase trap allocation from willing sellers. With no aggregate allocation caps, the fishery would continue on with no short-term socio-economic impacts to Area 2 lobstermen and supporting industries. The data presented in Section 7.2.1.2 indicate that there has not been an excessive level of consolidation in the Area 2 fishery, despite the lack of aggregate trap caps. Therefore, maintaining the no action alternative is not likely to result in further consolidation in the fishery in a way that would benefit a few lobstermen at the expense of others, and, thus, no short term impacts are expected. In the longer term, no limits on consolidation will result in the potential for no traps being retired from the fishery. Thus, no improvement in the SNE lobster stock and no improvement in catches or revenue could be expected from the no action alternative, resulting in some possible slight negative impacts.

The three Area 2 alternatives largely have similar impacts. The no action alternative would have less negative short-term impacts than the preferred alternative because the preferred alternative would place ownership caps on Area 2 entities that could limit future business operations. The no action alternative would have the same slight negative to no impacts on human communities/the social-economic environment as the 1,600-trap alternative because ownership caps would be placed above what would currently restrict the fishery, thus allowing the fishery to operate as status quo.

7.2.1.2 Modified Commission Area 2 Alternative (preferred)

The preferred alternative would cap most entities at 800 active traps, beginning May 1, 2023 This option would establishing a de facto owner-operator fishery for the majority of the Area 2 fishery. However, it would allow entities with permits and traps in excess of this limit to retain those permits and traps, but not own or share ownership of any additional permits or traps. As such, these entities would be limited to their current permits/trap allocations.

The preferred alternative is expected to have no impacts in the short-term and longer-term slight negative impacts on human communities/the social-economic environment. Historically, the fishery is largely prosecuted as an owner/operator fishery. To mitigate the 2016-2021 trap reductions in the absence of banking, a small number permit holders have maintained ownership of a second permit or have purchased an additional permit. By moving traps from a second permit to an active permit through the trap transfer program, a permit holder could replenish the trap allocation associated with their active vessel in response to the 2016-2021 reductions. Available data indicates that this practice was not widespread, and generally, the Area 2 fishery continues to be comprised of owner/operators with a single vessel and permit. As Table 42 indicates, the vast majority of permit holders (166 or approximately 85%) and entities (144 or approximately 85%) had only a single permit and, therefore, had aggregate allocations of 800 traps or less. Thus, no impact would result to these entities as a result of an 800 trap per entity ownership cap.

Table 41. Summary of Affected 2019 Permits, Permit Holders, and Entities

	Total	Aggregate Allocation less than 800 Traps	Aggregate Allocation more than 800 Traps
# Permits	213	156	57
# Permit Holders	192	166	26
# Entities	167	144	23

The remaining 15% of permit holders and entities exceed the 800-trap limit. For this subset of Area permit holders and entities, Table 43 attempts to identify the number of permits owned. In total, 26 permit holders and 23 entities (both approximately 15%), representing 57 permits, had aggregate Area 2 allocations that would exceed 800 traps. Of those, 16 permit holders and 16 entities actively fished with only one permit (based on dealer data), despite all owning more than one permit with an Area 2 allocation. Consequently, we can deduce that these permit holders purchased or maintained a second permit for trap transfer purposes to sustain a business based on a single-vessel operation with a full allocation of traps. In contrast, 7 permit holders and 5 entities with allocations in excess of 800 traps had two active permits, indicating the very small component of the fishery that relies on a multi-vessel model in Area 2. Most entities in this subset own two permits, however, two entities own three total permits.

Table 42. Summary of 2019 Permits, Permit Holders, and Entities

	Aggregate Allocation more than 800 Traps	Aggregate Allocation more than 800 Traps with 1 Active Permit	Aggregate Allocation more than 800 Trap with 2 Active or More Permits
# Permits	57	36	12
# Permit Holders	26	16	7
# Entities	23	16	5

This preferred alternative would allow these 5 entities to retain these permits, but not own any additional permits or traps. This, the preferred alternative captures and caps the Area 2 fishery in its current make up. In the short term, no impacts are expected, similar to the no action alternative. In the longer term, slight negative to slight positive impacts on human communities/the social-economic environment could be expected. As discussed in greater detail in Section 7.3.1.2, slight negative impacts to the SNE lobster stock could be expected, as effort levels would be maintained on an already depleted stock: Should this effort continue causing additional pressure on the collapsed SNE stock, slight negative long-term impacts on human communities/the social-economic environment could be expected due to loss in fishing opportunity and revenue. These impacts are qualified as slight because latent trap retirements are expected to continue as a result of the trap transfer program.

The three Area 2 alternatives largely have similar impacts. While all three alternatives would have no impact in the near-term because they allow for a status quo Area 2 fishery to continue, in the longer term, the preferred alternative would have more negative short-term impacts than the no action and the 1,600 trap alternative because the preferred alternative would place ownership caps on the Area 2 fishery that could limit future business plans.

7.2.1.3 1,600 Trap Alternative

This alternative would limit all Area 2 entities to 1,600 traps, regardless of the number of permits owned. Those entities who already have more than 1,600 traps would forfeit the difference, but would be allowed to engage in the trap transfer program to eliminate excess traps.

The 1,600 trap alternative is expected to have no short term impacts, and slight negative to no longer term impacts on the human communities/the social-economic environment. Similar to the no action alternative, this alternative largely maintains the status quo in the Area 2 lobster fishery. Area 2 permit holders would be unrestricted in the overall number of lobster permits with area 2 allocations that could be owned, but the aggregate allocation of all those permits could not exceed 1,600 traps. Area 2 permit holders would maintain the option of trap transferability into the future to optimize the size of their

businesses, but not entity could exceed the 1,600 trap cap. This alternative would likely have little impact on the fishery because, despite several years of transferability, no single entity has an aggregate allocation in excess of 1,600 traps. Therefore, each entity could maintain its current allocation of traps and permits. As a result, the no action alternative is expected to have no short-term impacts on the human communities/the social-economic environment. In the longer term, this alternative would not make any definitive changes in the fishery or reductions in traps, but it would serve to provide a cap on aggregate allocation into the future to ensure that consolidation does not occur. And, it would allow fishermen who are currently relying on more than one vessel for their Area 2 lobster businesses, to continue to do so without future interruption. However, as the 1,600 trap limit will no impact any permit holders through the retirement of traps, no improvement in the SNE lobster stock and yielding no improvement in catches or revenue could be expected, resulting in some possible slight negative impacts.

The three Area 2 alternatives largely have similar impacts. The 1,600 trap alternative would have less negative short-term impacts than the preferred alternative because the preferred alternative would place ownership caps on Area 2 entities at a lower level that could limit future business operations. The 1,600 trap alternative would have the same slight negative to no impacts on human communities/the social-economic environment as the no action because ownership caps would be placed above what would currently restrict the fishery, thus allowing the fishery to operate as status quo.

7.2.2 Area 3 Alternatives

7.2.2.1 No Action

The no action alternative in Area 3 is expected to result in no short term impacts, and slight negative to slight positive longer-term impacts on human communities/the social-economic environment. In general, no short-term impacts would be expected because all lobstermen with a Federal area 3 allocation would be allowed to continue to maintain their current allocations. They would remain unrestricted in the number of lobster permits or aggregate Area 3 trap allocation. With no aggregate allocation caps, the fishery would continue on with no short-term socio-economic impacts to Area 3 lobstermen and supporting industries.

In the longer term, permit holders with Area 3 trap allocations could continue to buy and sell allocation through the annual trap transfer process in order to optimize the size of their businesses. No one with a stake in the fishery would need to make any changes to their fishing operation. Those intending to buy into the Area 3 trap fishery would continue to have the opportunity to purchase trap allocation from willing sellers. However, trap allocation scarcity and cost, vessel and fishing operational costs, and other market forces could limit the ability of most Area 3 businesses to increase their operations. Larger, fleet-based operations could continue to expand, which could limit the ability of smaller businesses in acquiring additional trap allocation to expand their Area 3 fishing. This could result in slight negative longer term impacts to smaller Area 3 businesses and slight positive longer term impacts to larger Area 3 businesses. Further, as the no action has no possibility for retiring traps, no improvement in the SNE lobster stock and no improvement in catches or revenue could be expected from the no action alternative, resulting in some possible slight negative impacts.

The no action alternative would have the least negative short-term impacts on human communities/the social-economic environment when compared to either the preferred alternative or the Modified Commission Area 3 Alternative. These other alternatives have the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The no action alternative would have less positive longer-term impacts than the preferred alternative or the Modified Commission

Area 3 Alternative because the other alternatives have the possibility of contributing to some stock improvement, which may translate into increased future catch and revenue.

7.2.2.2 Adjusted Ownership Cap Alternative (preferred)

The preferred alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (7,740 traps) in Addenda XXI and XXII, with modifications to the aggregate caps from what the Commission recommended and omission of the individual permit caps, as shown in Table 5. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap.

The preferred alternative would result in slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. To determine the effects of this alternative on human communities/the social-economic environment, we first must determine how entities will be impacted by 1) the control date sub-alternative for aggregate trap allocations and 2) the active trap cap reductions.

A review of Area 3 permit and trap allocations by entity reveals that a substantial level of consolidation has not occurred, as only two entities exceed this alternative's final aggregate trap allocation of 7,740 traps. Accordingly, for the vast majority of Area 3 entities who have aggregate allocations below the aggregate cap, we did not assess against their previous individual and aggregate allocations based on possible 2014 and 2017 control dates and instead will proceed by evaluating these permit holders 2019 trap allocations. Consequently, no traps could be expected to be retired. Doing so would not reflect the current and past actions that have occurred in the fishery and could, potentially, offset the economic and conservation benefits attained through the series of trap cuts and other measures.

For the two entities that exceed the aggregate trap cap of 7,740 traps, we assessed the entities' permits and trap allocations based on the 2014 and 2017 control dates, as well as using current data (using 2019 permit data as a proxy). Table 44 summarizes the total traps held by the two entities and the maximum number of traps that could be retired if we reverted back to one of the control dates (i.e., the difference between 2019 and each control date). Although their allocations have increased somewhat over time, we did not detect a significant difference in how these entities operated since 2014 that would suggest a level of consolidation that would comprise a disproportionate stake in the American lobster fishery. Those entities had similarly high aggregate allocations at the time the Commission adopted the addendum, reflecting a fleet-based Area 3 business model. Thus, it does not appear that a substantial level of consolidation occurred that would run counter to the Commission's intent in Addendum XXII. Next, we are able to determine the maximum number of traps that could be retired based on the selection of a control date (i.e., the difference between the entities' 2019 and each control date). Moving forward with current allocations would result in no traps being removed. If we reverted these two entities back to their respective 2014 allocations, we see that we would have an initial reduction of 6,303 traps compared to their current (2019) aggregate allocations, before the reductions from the active trap caps are considered. That initial reduction is much less pronounced in 2017, with a reduction of 31 traps in aggregate from current (2019) levels.

Table 43. Summary of Entities with Aggregate Allocations in Excess of the Aggregate Trap Cap (7,740 traps)

Control Date Year	2014	2017	2019
Combined Total Allocations	28,334	34,706	34,737
Maximum Number of Traps Retired (i.e., difference from 2019)	**6,303**	**31**	**0**

Next, we assessed the number of traps that exceed the active trap cap for each permit's trap allocation across all entities (affected and not affected by the aggregate trap caps). For entities not affected by aggregate trap caps and control dates, we assessed each entities' Area 3 permit's 2019 trap allocations against the ultimate trap cap of 1,548 traps. For each permit, any traps above the 1,548 limit would be assumed to be retired. A total of 4,655 traps, at most, could be expected to be retired from entities not affected by the aggregate trap caps. For entities affected by the control date, we assessed each entities' Area 3 permit's 2014, 2017, and 2019 trap allocations against the ultimate trap cap of 1,548 traps. For entities affected by the control dates, a total of 1,005 traps could be retired using 2014 allocations, 6,705 traps using 2017, and 4,706 traps using 2019 allocations. Thus, this alternatives sub-options could result in between 5,660 traps and 11,330 traps being retired, as a result of the active trap caps. Table 45 summarizes the maximum total number of traps that may be retired due to the active trap cap reductions.

Table 44. Estimated Trap Reductions by Entity Category When Active Trap Cap (1,548 traps) Reductions are applied

Control Date	2014	2017	2019
Maximum Number of Traps Retired due to Active Trap Cap Reductions from Entities **not** Affected by Control Dates	4,655	4,655	4,655
Maximum Number of Traps Retired due to Active Trap Cap Reductions from Entities Affected by Control Dates	1,005	6,705	4,706
Maximum Total Traps Retired	**5,660**	**11,360**	**9,361**

When combined, entities are at risk of losing a between approximately 9,000 traps and 12,000 traps, as shown in Table 46, affecting between 27 and 43 permits (discussed in greater detail in the following sub-alternatives).

Table 45. Number of Traps Retired by Control Date Sub-Alternative

Control Date	2014	2017	2019
Maximum Number of Traps Retired due to Active Trap Cap Reductions from Entities **not** Affected by Control Dates	4,655	4,655	4,655
Maximum Number of Traps Retired due to Control Date Selection	6,303	31	0
Maximum Number of Traps Retired due to Active Trap Cap Reductions from Entities Affected by Control Dates	1,005	6,705	4,706
Maximum Total Traps Retired	**11,963**	**11,391**	**9,361**
Permits Affected	**27 permits**	**41 permits**	**43 permits**

The economic impact on affected vessels consists of two parts: lost trap value from reduced traps and lost profit from reduced traps if there were actively fished. Table 47 shows the estimated cost of trap cap reduction in Area 3 by different control dates. For the lost trap value we used an average market price of $30 per trap. For the lost profit, we use the formula below: We first obtain the landing value for each permit in 2019 from dealer report data, and then we assigned the value to the lost traps using a simple

linear relationship. Finally, the profit rate will be applied to the lost revenue. For example, if a vessel landed $100,000 of lobster in 2019, and it will lost 10% of its trap allocation at the end of reduction, then we assume it would lose $10,000 from the lost traps. Because vessels above 55 feet have a profit rate of 5% (Zou Thunberg and Ardini, 2020), the lost profit for this vessel would be $5,000.

*Lost Profit = Landing Value * (Lost Traps/Total Allocation) * Profit Rate*

Total economic impacts of the maximum trap cap reduction encompassing both those affected and not affected by the control dates are summarized in Table 47.

Table 46. Total costs of Adjusted Ownership Caps with Control Dates

	Total Trap Reduction	Lost Trap Value	Lost Profit	Total Cost
Total Cost with application of 2014 Control Date	11,963	$358,890	$419,202	$778,092
Total Cost with application of 2017 Control Date	11,391	$341,730	$394,611	$736,341
Total Cost with application of 2019 Control Date	9,361	$280,830	$307,339	$588,169

Overall, most Area 3 entities will not be impacted by either the aggregate ownership caps or the active trap cap reductions. For these 66-79% of permit holders (87-103 permits, depending on the sub-alternative) no impact will result from this alternative. For the permits that would be affected by potential trap loss resulting from either the assessment of the control date associated with the aggregate caps or the active trap cap reductions, the loss of trap allocation would result in negative impacts due to trap loss, decreased landings, and associated revenue. However, this impact is qualified a slight. While some of these entities may experience more negative individual impacts, the number of permits that stand to lose active or inactive traps is relatively small (21-33% of permits and, with all sub alternatives resulting in approximately 10 percent of Area 3 traps that could be retired). In addition, the trap transfer program remains available as an option to help mitigate these negative impacts, which is difficult to account for in the above calculations. A permit holder that stands to lose traps may be able find a willing buyer for the excess traps, and thus recoup some revenue to offset some future losses estimated above.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on human communities and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of the control date/reduction schedule combinations will be selected.

In the longer-term slight positive impacts on human communities/the social-economic environment could be expected. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 7,740 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

The preferred alternative would have more negative short-term impacts on human communities/the social-economic environment when compared to the no action alternative because the preferred alternative has the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The preferred alternative would have more positive longer-term impacts than the no action alternative because the preferred alternative has the possibility of contributing to some stock improvement, which may translate into increased future catch and revenue. The preferred alternative would have the same short and long term impacts as the Modified Commission Area 3 Alternative because both alternatives could result in the same number of traps being retired from the fishery.

7.2.2.2.1 2014 Control Date Approach

As discussed above, this sub-alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the aggregate trap cap. As a result of using the 2014 control date, approximately 6,000 traps would be retired (Table 48, Year 0). Entities above below the aggregate cap would be allowed to build up to 7,740 traps while those above would be capped at their 2014 trap level.

Next, all permits (using 2019 permits for the majority and 2014 permits for the two entities affected by the control date) would then be assessed against the active trap cap reductions, as show in Table 5. Table 48 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

Table 47. Estimated Trap Reductions and Affected Permits Using 2014 Control Date and Adjusted Aggregate Trap Cap.

	Entities Not Above Aggregate Cap		**Entities Above Aggregate Cap and Subject to Control Date**		**Total**	
	Permits Affected	**Trap Reduction**	**Permits Affected**	**Trap Reduction**	**Permits Affected**	**Trap Reduction**
Year 0	N/A	0	N/A	6,303	N/A	**6,303**
Year 1 (1,900)	2	75	2	90	4	165
Year 2 (1,805)	10	518	2	280	12	798
Year 3 (1,715)	13	1,596	3	504	16	2,100
Year 4 (1,629)	19	2,924	3	762	22	3,686
Year 5 (1,548)	24	4,655	3	1,005	**27**	**5,660**
Total	24	4,655	3	7,308	**27**	**11,963**

Accordingly, this alternative could affect a total of 27 permit and could retire approximately 12,000 traps from the fishery, as shown in Table 48. Maximum total costs, as summarized in Table 47, is approximately $800,000. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders not affected by the control date would be affected by the active trap cap reductions, leading to slight negative short-term impacts on

human communities/the social-economic environment. As Table 48 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities affected by the control date, this sub alternative would invalidate business decisions made during the past 6 years. This action would substantially reduce these two entities' allocation from their current levels in retiring 6,303 traps from their allocations. In addition, these permit holders would then then stand to lose approximately 1,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 7,740 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the most negative short term impacts and the most positive longer term impacts when compared to the 2017 control date option or current permit data because it has the potential to retire the highest number of traps.

7.2.2.2.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer

program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.2.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.2.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.2.2.2 2017 Control Date Approach

As discussed above, this sub-alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the aggregate trap cap. As a result of using the 2017 control date, approximately 30 traps would be retired (Table 49, Year 0). Entities above below the aggregate cap would be allowed to build up to 7,740 traps while those above would be capped at their 2017 trap level.

Next, all permits (using 2019 permits for the majority and 2017 permits for the two entities affected by the control date) would then be assessed against the active trap cap reductions, as show in Table 5. Table 49 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

Table 48. Estimated Trap Reductions and Affected Permits Using 2017 Control Date and Adjusted Aggregate Trap Cap.

	Entities Not Above Aggregate Cap		Entities Above Aggregate Cap and Subject to Control Date		Total	
	Permits Affected	**Trap Reduction**	**Permits Affected**	**Trap Reduction**	**Permits Affected**	**Trap Reduction**
Year 0	N/A	0	N/A	31	N/A	**31**
Year 1 (1,900)	2	75	17	721	19	165
Year 2 (1,805)	10	518	17	2,336	27	798
Year 3 (1,715)	13	1,596	17	3,866	30	2,100
Year 4 (1,629)	19	2,924	17	5,328	36	3,686
Year 5 (1,548)	24	4,655	17	6,705	**41**	**11,360**
Total	24	4,655	17	6,736	**41**	**11,391**

Accordingly, this alternative could affect a total of 41 permits and could retire approximately 11,000 traps from the fishery, as shown in Table 49. Maximum total costs, as summarized in Table 47, is approximately $750,000. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders not affected by the control date would be affected by the active trap cap reductions, leading to slight negative short-term impacts on human communities/the social-economic environment. As Table 49 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities affected by the control date, this sub alternative would invalidate business decisions made during the past 3 years. This action would slightly reduce these two entities' allocation from their current levels in retiring approximately 30 traps from their allocations. In addition, these permit holders would then then stand to lose approximately 7,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating

additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 7,740 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the less negative short term impacts and the less positive longer term impacts when compared to the 2014 control date option because it has the potential to retire the fewer traps. This alternative is expected to result in the more negative short term impacts and the more positive longer term impacts when current permit data option because it has the potential to retire more traps.

7.2.2.2.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.2.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.2.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.2.2.3 Current Permit Data (as of May 1, 2019) Approach (Preferred)

As discussed above, this preferred sub-alternative maintains 2019 allocations all permit holders. This alternative acknowledges the business decisions that the Area 3 have made since the onset of the trap

transfer program in an effort to optimize their businesses, while mitigating the recently completed suite of trap reductions that reduced the overall Area 3 allocation by approximately 25 percent. Thus, no traps would be retired (Table 50, Year 0) due to using a control date. Next, all 2019 permits would then be assessed against the active trap cap reductions, as show in Table 5. Table 50 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

Table 49. Estimated Trap Reductions and Affected Permits Using Current Permit Data and Adjusted Aggregate Trap Cap.

	Entities Not Above Aggregate Cap		Entities Above Aggregate Cap		Total	
	Permits Affected	Trap Reduction	Permits Affected	Trap Reduction	Permits Affected	Trap Reduction
Year 0	N/A	0	N/A	0	N/A	**0**
Year 1 (1,900)	2	75	0	0	2	75
Year 2 (1,805)	10	518	11	504	21	1,022
Year 3 (1,715)	13	1,596	17	1,740	30	3,336
Year 4 (1,629)	19	2,924	18	3,235	37	6,159
Year 5 (1,548)	24	4,655	19	4,706	**43**	**9,361**
Total	24	4,655	19	4,706	**43**	**9,361**

Accordingly, this alternative could affect a total of 43 permits and could retire approximately 9,000 traps from the fishery, as shown in Table 50. Maximum total costs, as summarized in Table 47, is approximately $600,000. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders would be affected by the active trap cap reductions, leading to slight negative short-term impacts on human communities/the social-economic environment. As Table 50 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities above the aggregate trap cap, this sub alternative would result in the loss of approximately 5,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to

other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 7,740 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the least negative short term impacts and the least positive longer term impacts when compared to the 2014 or 2017 control date options because it has the potential to retire the smallest number of traps.

7.2.2.2.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.2.3.2 Three Year Allocation Cap Reduction (Preferred)

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This preferred sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.2.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or

sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.2.3 Modified Commission Area 3 Alternative

The Modified Commission Area 3 alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (9,000 traps), as recommended in Addenda XXI and XXII and shown in Table 7. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active.

A review of Area 3 permit and trap allocations by entity reveals that a substantial level of consolidation has not occurred, as only two entities exceed this alternative's final aggregate trap allocation of 9,000 traps, and the same two entities that were impacted by the preferred Adjusted Ownership Cap Alternative. Accordingly, all Area 3 entities with aggregate allocations below the aggregate cap were not assessed against their previous individual and aggregate allocations based on possible 2014 and 2017 control dates. Consequently, no traps would be retired, as we would use these entities 2019 trap allocations, similar to the preferred alternative. Doing so would not reflect the current and past actions that have occurred in the fishery and could, potentially, offset the economic and conservation benefits attained through the series of trap cuts and other measures.

For the two entities that exceed the aggregate trap cap of 9,000 traps, we assessed the entities' permits and trap allocations based on the 2014 and 2017 control dates, as well as using current data (using 2019 permit data as a proxy). Because these two permit holders were well higher than the aggregate ownership cap in this and the preferred alternative, similar impacts are expected. Table 45 summarizes the total trap held by the two entities and the maximum number of traps that could be retired if we reverted back to one of the control dates (i.e., the difference between 2019 and each control date). Although their allocations have increased somewhat over time, we did not detect a significant difference in how these entities operated since 2014 that would suggest a level of consolidation that would comprise a disproportionate stake in the American lobster fishery. Those entities had similarly high aggregate allocations at the time the Commission adopted the addendum, reflecting a fleet-based Area 3 business model. Thus, it does not appear that a substantial level of consolidation occurred that would run counter to the Commission's intent in Addendum XXII. Next, we are able to determine the maximum number of traps that could be retired based on the selection of a control date (i.e., the difference between the entities' 2019 and each control date). Moving forward with current allocations would result in no traps being removed. If we reverted these two entities back to their respective 2014 allocations, we see that we would have an initial reduction of 6,303 traps compared to their current (2019) aggregate allocations, before the reductions from the active trap caps are considered. That initial reduction is much less pronounced in 2017, with a reduction of 31 traps in aggregate from current (2019) levels.

Next, we assessed the number of traps that exceed the active trap cap for each permits trap allocation across all entities (affected and not affected by the aggregate trap caps). For entities not affected by aggregate trap caps, we assessed each entities' Area 3 permit's 2019 trap allocations against the ultimate trap cap of 1,548 traps. For each permit, any traps above the 1,548 limit would be assumed to be retired. As this is the same active trap cap analyzed in the preferred alternative, similar trap reductions are expected. For entities affected by the control date, we assessed each entities' Area 3 permit's 2014, 2017, and 2019 trap allocations against the ultimate trap cap of 1,548 traps. Table 46 summarizes the maximum total number of traps that may be retired due to the active trap cap reductions. A total of 4,655 traps, at

most, could be expected to be retired from entities not affected by the aggregate trap caps. For entities affected by the control dates, a total of 1,005 traps could be retired using 2014 allocations, 6,705 traps using 2017, and 4,706 traps using 2019 allocations. Thus, this alternatives sub-options could result in between 5,660 traps and 11,330 traps being retired, as a result of the active trap caps.

When combined, entities are at risk of losing a between approximately 9,000 traps and 12,000 traps, as shown in Table 47, affecting between 27 and 43 permits (discussed in greater detail in the following sub-alternatives).

Most Area 3 entities will not be impacted by either the aggregate ownership caps or the active trap cap reductions. For these 66-79% of permit holders (87-103 permits, depending on the sub-alternative) no impact will result from this alternative. For the permits that would be affected by potential trap loss resulting from either the assessment of the control date associated with the aggregate caps or the active trap cap reductions, the loss of trap allocation would result in negative impacts due to the decreased landings and associated revenue, similar to that summarized in Table 47. However, this impact is qualified a slight. While some of these entities may experience more negative individual impacts, the number of permits that stand to lose active or inactive traps is relatively small (21-33% of permits and, with all sub alternative resulting in approximately 10% of Area 3 traps that could be retired). In addition, the trap transfer program remains available as an option to help mitigate these negative impacts. A permit holder that stands to lose traps may be able find a willing buyer for the excess traps, and thus recoup some revenue to offset some future losses.

In the longer-term slight positive impacts on human communities/the social-economic environment could be expected. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 9,000 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

The Modified Commission Area 3 Alternative would have more negative short-term impacts on human communities/the social-economic environment when compared to the no action alternative because the Modified Commission Area 3 Alternative has the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The Modified Commission Area 3 Alternative would have more positive longer-term impacts than the no action alternative because it has the possibility of contributing to some stock improvement, which may translate into increased future catch and revenue. The Modified Commission Area 3 Alternative would have the same short and long term impacts as the preferred alternative because both alternatives could result in the same number of traps being retired from the fishery.

7.2.2.3.1 2014 Control Date Approach

As discussed above, this sub-alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the aggregate trap cap. As a result of using the 2014 control date, approximately 6,000 traps would be retired (Table 48, Year 0). Entities above below the aggregate cap would be allowed to build up to 9,000 traps while those above would be capped at their 2014 trap level.

Next, all permits (using 2019 permits for the majority and 2014 permits for the two entities affected by the control date) would then be assessed against the active trap cap reductions, as show in Table 5. Table 48 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As explained above, this alternative is expected to affect the same number of entities and result in the same number of traps being eliminated from the fishery as the preferred alternative. Accordingly, this alternative could affect a total of 27 permits and could retire approximately 12,000 traps from the fishery, as shown in Table 48. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders not affected by the control date would be affected by the active trap cap reductions, leading to slight negative short-term impacts on human communities/the social-economic environment. As Table 48 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities affected by the control date, this sub alternative would invalidate business decisions made during the past 6 years. This action would substantially reduce these two entities' allocation from their current levels in retiring 6,303 traps from their allocations. In addition, these permit holders would then then stand to lose approximately 1,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 9,000 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight

positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the most negative short term impacts and the most positive longer term impacts when compared to the 2017 control date option or current permit data because it has the potential to retire the highest number of traps.

7.2.2.3.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.3.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.3.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from 27 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.2.3.2 2017 Control Date Approach

As discussed above, this sub-alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the aggregate trap cap. As a result of using the 2017 control date, approximately 30 traps would be retired (Table 49, Year 0). Entities above below the aggregate cap would be allowed to build up to 9,000 traps while those above would be capped at their 2017 trap level.

Next, all permits (using 2019 permits for the majority and 2017 permits for the two entities affected by the control date) would then be assessed against the active trap cap reductions, as show in Table 5. Table 49 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-

alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As explained above, this alternative is expected to affect the same number of entities and result in the same number of traps being eliminated from the fishery as the preferred alternative. Accordingly, this alternative could affect a total of 41 permits and could retire approximately 11,000 traps from the fishery, as shown in Table 49. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders not affected by the control date would be affected by the active trap cap reductions, leading to slight negative short-term impacts on human communities/the social-economic environment. As Table 49 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities affected by the control date, this sub alternative would invalidate business decisions made during the past 3 years. This action would slightly reduce these two entities' allocation from their current levels in retiring approximately 30 traps from their allocations. In addition, these permit holders would then then stand to lose approximately 7,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 9,000 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the less negative short term impacts and the less positive longer term impacts when compared to the 2014 control date option because it has the potential to retire the fewer traps. This alternative is expected to result in the more negative short term impacts and the more positive longer term impacts when current permit data option because it has the potential to retire more traps.

7.2.2.3.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.3.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.3.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from 41 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.2.3.3 Current Permit Data (as of May 1, 2019) Approach

As discussed above, this preferred sub-alternative maintains 2019 allocations all permit holders. This alternative acknowledges the business decisions that the Area 3 have made since the onset of the trap transfer program in an effort to optimize their businesses, while mitigating the recently completed suite of trap reductions that reduced the overall Area 3 allocation by approximately 25 percent. Thus, no traps would be retired (Table 50, Year 0) due to using a control date. Next, all 2019 permits would then be assessed against the active trap cap reductions, as show in Table 5. Table 50 summarizes the number of permits affected and the maximum number of traps that could be retired as a result of this sub-alternative, on the 5-year schedule recommended by the Commission. Additional sub-alternatives consider implementing the active trap cap reduction in 1, 3, or 5 years. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are

implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As explained above, this alternative is expected to affect the same number of entities and result in the same number of traps being eliminated from the fishery as the preferred alternative. Accordingly, this alternative could affect a total of 43 permits and could retire approximately 9,000 traps from the fishery, as shown in Table 50. This alternative would have slight negative short-term impacts on human communities/the social-economic environment. Some Area 3 permit holders would be affected by the active trap cap reductions, leading to slight negative short-term impacts on human communities/the social-economic environment. As Table 50 shows, 24 permits will have their active trap allocations reduced when the lowest active trap cap is reached, amounting to, at most, 4,655 traps being retired from the fishery. These permit holders will need to adjust to fishing at a lower trap level and may suffer losses in revenue from fishing fewer traps. Additionally, they may lose the investments made through permit or allocation purchases if they are unable to sell or otherwise distribute allocation during the cap reductions. The impact is qualified as slight for several reasons. First, permit holders may be able to engage in trap transfers to sell away traps that they may lose and thus recoup some of the revenue that would otherwise be lost. Second, fishing at a lower trap level may reduce overhead and operation expenses and could offset some or all of the losses in revenue if catch efficiency remains constant.

For the entities above the aggregate trap cap, this sub alternative would result in the loss of approximately 5,000 traps due to the active trap cap reductions. We estimate negative impacts to result from lost investments in vessels, gear, and allocation that they made since the onset of trap transferability. Revenues would likely decline as these two entities would be forced to adjust their fishing operations to these previous allocations. However, because these entities would be able to participate in trap transfers, they may be able to mitigate some of the losses associated by active trap cap reductions by selling traps to other individuals, or building up the trap allocations of some of their own permits. If they can, over time, redistribute these traps onto one of their own permits to activate another vessel, it could reduce any losses in catch revenue associated with the trap cap reductions. However, outfitting an additional boat would incur additional business costs.

In the longer term, slight positive impacts on human communities/the social-economic environment could be expected to result from this alternative. This alternative would cap the two entities in excess of the aggregate trap limit at their current trap allocations and prevent these entities from accumulating additional traps. This alternative would allow other permit holders to build up their businesses up through permit acquisition and trap transfers to 9,000 traps. Positive long term impacts on human communities/the social-economic environment are expected to result as these caps ensure a level of parity in the Area 3 fishery. In addition, as discussed in greater detail in Section 7.3.2.2, slight positive results on the SNE lobster stock could be expected as this alternative may result in some traps being permanently retired from the fishery. If trap reductions are realized and the status of the SNE stock improves, slight positive long-term impacts could be expected due to an increase in fishing opportunity and future revenue.

As provided in Section 7.2.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative to no short term impacts on human communities/the social-economic environment, with longer-term slight positive impacts. This alternative is expected to result in the least negative short term impacts and the least positive longer term impacts when compared to the 2014 or 2017 control date options because it has the potential to retire the smallest number of traps.

7.2.2.3.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This sub-alternative achieves all reductions in one year. This would result in slightly more negative short-term impacts and similar long-term impacts on human communities/the social-economic environment as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.2.2.3.3.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This preferred sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less negative short-term impacts on human communities/the social-economic environment than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more negative short-term impacts on human communities/the social-economic environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.2.2.3.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from 43 permit holders. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in the least negative short-term impacts on human communities/the social-economic environment because it affords the most time to redistribute or sell allocation in advance of the active trap cap reductions, making this the least economically burdensome of the three implementation scenarios.

7.2.3 Reporting

7.2.3.1 No Action

The no action is expected to result in no direct impacts to human communities/human communities/socioeconomic environment. At present, most federal vessel permits have mandatory federal reporting requirements. The Federal lobster permit, however, is an exception and does not presently have mandatory harvester reporting. This alternative does not add additional reporting requirements on Federal lobster permit holders. Those Federal lobster permit holders who currently do not submit a VTR will not be required to do so and, therefore, will forego the time and costs associated with submitting a trip-level catch report. Those who submit a trip-level report to their state agency and those required to submit a VTR to NMFS, may carry on with their current level of reporting. By virtue of holding other federal permits, approximately 50 percent lobster permit holders are required to submit vessel trip reports, though reporting rates vary by region. Data presented in Section 3.5 indicates that reporting rates are higher in Southern New England and lower in the Gulf of Maine. The Commission has estimated that "only 10% of all Maine federal permit holders and 3% of the total Maine lobster fleet report through vessel trip reports. In statistical area 514 (Massachusetts coast), 25% of permits report with vessel trip reports. This percentage increases with distance from shore as roughly 63% of the lobster fleet which fishes in statistical area 537 (south of Cape Cod) reports through vessel trip reports and 98% of the fleet in statistical area 515 (near Hague line) reports with vessel trip reports. A high portion of vessels

(95%) hailing from New Jersey through Virginia submit vessel trip reports." Due to the overlap with the lobster fishery and other fisheries that require federal vessel trip reports, no change is expected in the number of harvesters that would be required to submit a federal vessel trip report.

Some slightly negative indirect impacts to human communities could be expected by maintaining the status quo. Although time and cost burdens will not change in the shorter term, human communities, particularly those dependent upon the lobster and Jonah crab trap fisheries, will suffer negative impacts over time as the continued lack of lobster fishery information will deprive the industry of defending and quantifying the value of its fishing grounds. Addendum XXVI's mandate for 100 percent harvester reporting at the state level will ultimately require lobstermen who currently are without either a state or a VTR requirement to submit one to their state. Specifically, Maine is the only state that does not require all harvesters to report on a trip by trip basis. Addendum XXVI allows Maine until 2023 to roll out this requirement to all Maine lobster licensees. Therefore, by 2023, an additional 1,000 or more such licensees who are currently not required to submit a VTR or a state trip report, will be covered by Maine's new reporting requirement. Despite the looming state requirements, status quo would perpetuate the geographic data gap because it would not extend to the fishery in offshore Area 3, where about 27 percent of permit holders would not be required to report.

Although the status quo option would maintain the current reporting burden and absolve those without a VTR requirement the costs of submission, the status quo is likely to have negative indirect impacts for the lobster fishery in the longer-term. In the past, the lobster industry has successfully lobbied against reporting, citing the need to protect their fishing practices and business interests. However, more recently, this lack of fishery dependent data has hampered the industry in defending itself when faced with conflicting marine interests such as the declaration of the Northeast Canyons and Seamounts National Monument in the twilight of the Obama administration in 2016. The dearth of information on the location and effort level of the fishery on Georges Bank, the Gulf of Maine, and other areas within the scope of the Monument made it difficult for the industry to make a claim of the impacts to their livelihood associated with the establishment of the Monument. To overcome the data gap, industry representatives communicated directly with NMFS to explain the potential overlap between the lobster fishery and the Monument; a revelation that a lack of spatial data left the industry at a disadvantage.

The ongoing struggle to put a higher level of resolution on the spatial component of the lobster fishery has lingered over the past two decades with respect to reducing risk of entanglement of large whales in lobster gear. The lack of an accurate geographic representation of the where the lobstermen fish, and the overlap with large whale activity, has been a consistent obstacle to implementing a management program with a high probability of risk reduction. Now that the seasonal activity of large whales has become more uncertain due to the effects of climate change, the data gap has become even more of a hindrance to understanding the seasonal and spatial need for management actions that could effectively reduce entanglement risk. By maintaining status quo on harvester reporting, these data and information gaps will continue into the future and limit the ability of managers and the industry to act cooperatively to find reasonable solutions to this and other conflicts.

The increased need to consider areas for alternative energy sources such as offshore wind farms pose another threat to the long-term prosecution of the lobster fishery. Offshore energy projects require relatively large areas of the marine environment to be effective and without solid information on where the lobster and other fisheries are occurring, it is more difficult for the industry and state and federal managers to understand and quantify the impacts to the fishery due to loss of fishing grounds and other impacts to their fishing operations. The focus on offshore energy production is continuing to escalate and the sooner the industry can provide better information to substantiate its footprint, the better its position to

quantify the impacts associated with various marine energy projects. A more comprehensive and reliable data set to quantify the spatial activities of the lobster fleet will force the need for closer consideration of the impacts to the fishing fleet, but that opportunity would be lost with the continuation of the status quo.

Electronic and paper reporting alternatives would result in more negative direct impacts on human communities/the social-economic environment than the no action alternative. However, both of those options would result in more positive indirect impacts, due to the collection of additional information on the fishery, as discussed above.

7.2.3.2 Electronic Trip Level Reporting

Some slight negative direct impacts from this alternative can be expected. Those permit holders who currently do not report will be subject to some costs associated with the time to fill out and submit a VTR. While GARFO-approved electronic reporting applications are free and most can be easily installed on a mobile phone or tablet and would not require the space and expense of a computer, they do still involve the purchase and connection (mobile data or wifi) of that mobile or tablet device. We estimate that a device may cost between $0-200, and monthly wireless carrier fees may reach up to $50 per month. However, these devices are ubiquitous in society for personal use, making these costs effectively discountable.

Electronic applications may save time, as certain information (such as vessel identification and general data fields) may be prepopulated upon set up. For each trip, a harvester would be required to add in the pertinent information for the particular trip and could then easily submit it electronically. Although not as effective as a more specific fixed gear reporting form in directly garnering data on the number of vertical lines and specific locations of all trap trawls as recommended by the Commission, this approach would improve the spatial and effort data collected by using an existing system that can be effectively monitored and audited for quality assurance. It would also fill a major data gap and leap a longstanding hurdle of getting all Federal lobster vessels to report; eliminating the geographic bias that results from having only those Federal lobster vessels with a permit other than a Federal lobster permit submitting a VTR.

As shown in Table 25, requiring mandatory trip-level harvester reporting would obligate 1,271 Area 1 vessels (77% of all Federal Area 1 vessels) to submit a VTR along with the 377 Area 1 vessels that currently report due to holding other permits. An additional 85 Area 2 vessels (44% of all Federal Area 2 vessels), and 35 Area 3 vessels (27 % of all Federal Area 3 vessels), would be subject to the VTR requirements. Ten or fewer vessels in each of the other areas would be newly subject to this reporting requirement.

As shown in Table 26, the majority of Federal lobster permit holders that would fall under a new mandatory reporting requirement hail from Maine port. Specifically, an additional 1,135 Federal lobster vessels from Maine would be subject to a VTR requirement; approximately 79% of all permits that are currently not required to submit a VTR. In addition to these Maine-based vessels, this mandatory VTR requirement would require 189 Massachusetts vessels, 63 Rhode Island vessels, and 20 New Hampshire vessels to begin submitted Federal VTRs. In all other states, 10 or fewer vessels would be newly subject to this reporting requirement.

In addition, the preferred alternative includes the collection of additional data fields for all Federal lobster permit holders. It is expected that the addition of the four additional data fields (Lobster Conservation Management Area, 10-minute square, number of traps per trawl (most common during trip), and total number of buoy lines in the water) would not take a substantial amount of time to enter, nor is it expected to substantially increase the cost associated with submitted the form. It is expected that electronic reporting will improve data quality because it will prohibit a permit holder from submitting a report if the

reported data in certain fields does not fall within approved parameters. Additionally, NMFS will augment its quality control as part of the lobster mandatory reporting program and overall electronic reporting process, to ensure that data meets the ACCSP and other data quality standards.

Some moderate positive indirect impacts from the preferred alternative can be expected. Better data yields better management. Lobster fishermen and those in its supporting industries will benefit from having a more comprehensive and accurate accounting of where the fishery takes place and the level of effort in the fishery. It will also provide better information on the gear configurations used in the fishery. This improved spatial and effort data will be tremendously useful for scientists in filling the gaps that currently exist in the data available for assessing the health of the lobster stocks. Managers will have better scientific and fishery-dependent data for basing management decisions, which could improve the sustainability of the lobster resource and fishery, an industry that had a value of $666.7 million in 2018. Improved data will also help to understand the impacts and trends occurring in the lobster resource due to climatic events and this knowledge can help scientists and managers to forecast future trends in the fishery, allowing fishermen to make more informed business decisions.

The industry will be able to rely on a more comprehensive data set to verify its fishing practices and fishing grounds. The impacts to the industry from marine energy projects, habitat protection measures, large whale impacts, and other conflicting uses and issues will be much more evident and conclusive with the higher resolution of spatial data that will result from the preferred alternative. Conversely, important analyses of marine energy projects such as wind farms, will have more reliable data on the impacts to the fishing industry and the marine environment, which will facilitate the public comments and environmental review for these projects that are an important consideration for future sustainable energy production that have wide-ranging impacts and benefits to the human environment.

Managers, scientists, and environmental groups will be able to use the data for management decisions on limiting the interactions between large whales and lobster gear. The benefits to the overall human environment by limiting interactions, and takes, of large whales cannot be understated and would impart a higher level of overall marine sustainability in the Gulf of Maine and Georges Bank ecosystem.

Compared to the no action alternative, this alternative would result in more negative direct impacts and more positive indirect impacts. Compared to the paper reporting alternative, this alternative would result in similar impacts.

7.2.3.3 Trip Level Reporting with Paper

As with the preferred alternative, some slight negative direct impacts from this alternative can be expected. Permit holders would be subject to some costs associated with the time to fill out and submit a VTR via the U.S Postal Service (presently estimated at 5 minutes per report and approximately $0.50 per mailing). This alternative is expected to yield moderate positive benefits to human communities. Although it may negatively impact the shorter-term timeliness and accuracy of the data collected, this alternative will still achieve the more comprehensive data set on where the lobster fishery operates and the associated levels of fishing effort. Human communities overall will benefit from the potential for improved stock assessment and management of the American lobster fishery and resource, with a potentially higher probability of long term sustainability for one of the most iconic and valuable fishery resources in the United States. The lobster fishery and support industries will stand to benefit from the data as the improvements could augment the ability of scientists and managers to sustainably manage the fishery. The information and more accurate assessments and management measures will help the lobster industry to forecast harvests and make more informed business decisions. In the shorter term, the lobster

industry would endure the time and cost burdens associated with filling out and submitted a VTR for every lobster fishing trip if they choose to use a paper form rather than the electronic alternative.

Compared to the no action alternative, this alternative would result in more negative direct impacts and more positive indirect impacts. Compared to the preferred alternative, this alternative would result in similar impacts.

7.3 Impacts of the Alternatives on Target Species

This section considers the impacts of the management alternatives described in Section 5.0 on the target species, the American lobster resource.

7.3.1 Area 2 Alternatives

7.3.1.1 No Action

Under the No-Action Alternative, the impacts to the lobster resource are mixed. No impact is expected on the GOM/GBK stock, as the GOM/GBK stock area overlaps with Area 2 minimally and the stock is experiencing near record high abundance. Therefore, maintaining the existing trap limits is expected to have no effect on the GOM/GBK lobster stock. The impacts to SNE stock are expected to be slightly negative because the depleted stock status would be maintained under the current management scenario. While traps would be reduced through the final year of trap reductions and continue to be transferred through the trap transfer program, a single ownership cap would not be implemented. Therefore, additional measures to curb latent effort, reduce traps, and address the poor condition of the SNE stock would not be implemented. The impact is qualified as slight because substantial consolidation has not been observed and there is little biological or economic incentive to do so.

The three Area 2 alternatives largely have similar impacts. The no action alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because Area 2 only minimally overlaps with the stock area. While both the preferred alternative and the no action largely allow the fishery to operate as status quo, the no action alternative would have slightly more negative impacts than the preferred alternative because the no action makes no effort to place ownership caps on the fishery. The no action alternative would have the same impacts to the SNE lobster stock as the 1,600-trap alternative because ownership caps would be placed above what would currently restrict the fishery, thus allowing the fishery to operate as status quo.

7.3.1.2 Modified Commission Area 2 Alternative (preferred)

The preferred alternative would cap most entities at 800 active traps, beginning May 1, 2023. This option would establishing a de facto owner-operator fishery for the majority of the Area 2 fishery. However, it would allow entities with permits and traps in excess of this limit to retain those permits and traps, but not own or share ownership of any additional permits or traps. As such, these entities would be limited to their current permits/trap allocations.

Under the preferred alternative, the impacts to the lobster resource are mixed. No impact is expected on the GOM/GBK stock, as the GOM/GBK stock area overlaps with Area 2 minimally and the stock is experiencing near record high abundance. Maintaining the fishery in its current state is expected to have no effect on the GOM/GBK lobster stock. The impacts to SNE stock are expected to be slightly negative. The preferred alternative does not have the possibility of retiring any excess traps in the near-term, beyond what has been retired from the 6-year trap reduction schedule and the ongoing trap transfer program. Fishing effort could be expected to remain at current levels. Given the depleted status of the SNE lobster resource, maintaining this level of effort would be expected to result in negative impacts to the SNE lobster stock. However, it is unknown how these ownership limits might change an entity's

fishing practices and soak times, which could affect the SNE lobster resource. Therefore, the negative impact is qualified as slight.

The three Area 2 alternatives largely have similar impacts. The preferred alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because Area 2 only minimally overlaps with the stock area. While all three alternatives allow for a near status quo Area 2 fishery to continue, the preferred alternative would have slightly less negative impacts than either the no action or the 1,600 trap alternative because ownership caps would be implemented, which may place some future limits on the fishery's impact to the SNE stock.

7.3.1.3 1,600 Trap Alternative

This alternative would limit all Area 2 entities to 1,600 traps, regardless of the number of permits owned. Those entities who already have more than 1,600 traps would forfeit the difference, but would be allowed to engage in the trap transfer program to eliminate excess traps.

The 1,600-trap alternative is expected to result in mixed impacts to the lobster resource. No impact is expected on the GOM/GBK stock, as the GOM/GBK stock area overlaps with Area 2 minimally and the stock is experiencing near record high abundance. Therefore, instituting a 1,600 trap limit (which caps the fishery to existing practices) is expected to have no effect on the GOM/GBK lobster stock. The impacts to SNE stock are expected to be slightly negative because the fishing effort on the presently depleted stock status would be maintained under this alternative. While traps have reduced through the final years of trap reductions and continue to be transferred through the trap transfer program, instituting a 1,600-trap cap fails to institute further limits on the fishery, similar to the status quo under the no action alternative. In other words, after trap reductions reduce effort, a 1,600 trap cap would allow active effort to be built back up by activating latent effort, resulting in slight negative impacts to the SNE lobster stock.

The 1,600-trap alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because Area 2 only minimally overlaps with the stock area. The 1,600-trap alternative would have the same impacts to the SNE lobster stock as the no action alternative because no traps would be removed from the fishery. While both the preferred alternative and the 1,600 trap alterative largely allow the fishery to operate as status quo, the 1,600 trap alternative would have slightly more negative impacts than the preferred alternative because it places an ownership caps on the fishery at a higher level than the preferred alternative.

7.3.2 Area 3 Alternatives

7.3.2.1 No Action

Under the no action alternative, the impacts to the lobster resource are mixed. No impact is expected to the GOM/GBK stock, the small number of permits and therefore traps fished in the GBK portion of Area 3 are dwarfed by the substantial number of participants in the Area 1 (inshore GOM) portion of the stock. Therefore, maintaining the existing trap cap limits and not implementing an aggregate ownership cap is expected to have no effect on the GOM/GBK lobster stock.

The no action alternative is expected to have slight negative impacts on the SNE lobster stock. While traps have been reduced through 5 years of scheduled trap reductions and continue to be transferred through the trap transfer program, the active trap cap and aggregate ownership cap proposed by the Commission would not be implemented and latent traps could be converted into active traps. In short, additional measures to curb latent effort, reduce traps, and address the poor condition of the SNE stock

would not be implemented. The impact is qualified as slight because substantial consolidation has not been observed.

The no action alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because the Area 3 component of fishery that overlaps with the GOM/GBK stock is minimal. The no action alternative would have more negative impacts than the preferred alternative because as is described in the preferred alternative has the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The no action alternative would have more negative impacts than the Modified Commission Area 3 alternative because the Modified Commission Area 3 alternative has the possibility of removing a small number of traps from the fishery and limiting future consolidation.

7.3.2.2 Adjusted Ownership Cap Alternative (preferred)

The preferred alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (7,740 traps) in Addenda XXI and XXII, with modifications to the aggregate caps from what the Commission recommended and omission of the individual permit caps, as shown in Table 5. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap.

Under the preferred alternative, the impacts to the lobster resource are mixed. No impact is expected on the GOM/GBK stock as described above in Section 7.3.2.1. The preferred alternative is expected to have slight positive impacts on the SNE lobster stock. The implementation of the individual and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps, depending on the control date sub-alternative selected, described in detail in Section 7.2.2.2 and summarized in Table 51 below. If these traps are permanently retired from the fishery, it may positively impact the SNE lobster stock through reductions in effort and fishing mortality. The impact to the target species is qualified as slight because these reductions are small in comparison to the number of traps allocated in Area 3 and may not be fully realized if the permit holders transfer these traps to other permit holders before the reductions are implemented. The impacts of the various control dates and trap cap reduction timeframe sub-options are discussed in greater detail in the following sub-sections.

Table 50. Number of Traps Retired by Control Date Sub-Alternative

Control Date	2014	2017	2019
Maximum Number of Traps Retired due to Control Date Selection	6,403	31	0
Maximum Number of Traps Retired due to Trap Reductions from Entities Affected by Control Dates	1,005	6,705	4,706
Maximum Number of Trap Retired due to Trap Reductions from Entities **not** Affected by Control Dates	4,655	4,655	4,655
Maximum Total Traps Retired	**11,963**	**11,391**	**9,361**

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 7,740 traps in this alternative. Further, although active trap

allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and 2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on the target species and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The preferred alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because the Area 3 component of fishery that overlaps with the GOM/GBK stock is minimal. The preferred alternative would have more positive impacts than the no action alternative to the SNE lobster stock because the preferred alternative has the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The preferred alternative would the same impacts to the SNE stock as the Modified Commission Area 3 alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.3.2.2.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 below.

Table 51. Maximum Number of Traps that could be Retired, using the 2014 Control Date

Year	Active Trap Cap	Permits Affected	Cumulative Trap Reduction
0	2,000	N/A	6,303
1	1,900	4	165
2	1,805	12	798
3	1,715	16	2,100
4	1,629	22	3,686
5	1,548	27	5,660
	Total	**27**	**11,963**

Accordingly, this could retire approximately 12,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster stock. This alternative would have the most positive impacts on the lobster resource when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.3.2.2.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.2.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.2.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest

period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.2.2.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 below.

Table 52. Maximum Number of Traps that could be Retired, using the 2017 Control Date

Year	Active Trap Cap	Permits Affected	Cumulative Trap Reduction
0	2,000	N/A	31
1	1,900	19	796
2	1,805	27	2,854
3	1,715	30	5,462
4	1,629	36	8,252
5	1,548	41	11,360
	Total	**41**	**11,391**

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster stock. This alternative would have less positive impacts on the lobster resource when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have more positive impacts on the lobster resource when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.3.2.2.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.2.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.2.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.2.2.3 Current Permit Data (as of May 1, 2019) Approach (preferred)

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 7,740 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 below.

Table 53. Maximum Number of Traps that could be Retired, using Current Permit Data (2019 as proxy)

Year	Active Trap Cap	Permits Affected	Cumulative Trap Reduction
0	2,000	N/A	0
1	1,900	2	75
2	1,805	21	1,022
3	1,715	30	3,336
4	1,629	37	6,159
5	1,548	43	9,361
	Total	**43**	**9,361**

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the current permit data Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster

stock. This alternative would have least positive impacts on the lobster resource when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.3.2.2.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.2.3.2 Three Year Allocation Cap Reduction (Preferred)

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.2.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.2.3 Modified Commission Area 3 Alternative

The Modified Commission Area 3 alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (9,000 traps), as recommended in Addenda XXI and XXII and shown in Table 7. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active.

Under the preferred alternative, the impacts to the lobster resource are mixed. No impact is expected on the GOM/GBK stock as described above in Section 7.3.2.1. This alternative is expected to have slight positive impacts on the SNE lobster stock. The implementation of the individual and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps, depending on the control date sub-alternative selected, described in detail in Section 7.2.2.2 and summarized in Table 52. If these traps are permanently retired from the fishery, it may positively impact the SNE lobster stock through reductions in effort and fishing mortality. The impact to the target species is qualified as slight because these reductions are small in comparison to the number of traps allocated in Area 3 and may not be fully realized if the permit holders

transfer these traps to other permit holders before the reductions are implemented. The impacts of the various control dates and trap cap reduction timeframe sub-options are discussed in greater detail in the following sub-sections.

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 9,000 traps in this alternative. Further, although active trap allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and 2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on the target species and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The Modified Commission Area 3 alternative would result in the same no impact to the GOM/GBK stock as the other alternatives, because the Area 3 component of fishery that overlaps with the GOM/GBK stock is minimal. The Modified Commission Area 3 alternative would have more positive impacts than the no action alternative to the SNE lobster stock because the preferred alternative has the possibility of removing traps from the fishery, curbing the activation of latent effort, and limiting future consolidation. The Modified Commission Area 3 alternative would the same impacts to the SNE stock as the preferred alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.3.2.3.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit

by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

Accordingly, this could retire approximately 12,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster stock. This alternative would have the most positive impacts on the lobster resource when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.3.2.3.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.3.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.3.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.2.3.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire

approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and Table 53 above.

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster stock. This alternative would have less positive impacts on the lobster resource when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have more positive impacts on the lobster resource when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.3.2.3.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.3.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.3.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.2.3.3 Current Permit Data (as of May 1, 2019) Approach

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 9,000 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.3.2.2, the current permit data Alternative, and its sub-options, are expected to mixed, with no impact on the GOM/GBK lobster stock and slight positive impacts on the SNE lobster stock. This alternative would have least positive impacts on the lobster resource when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.3.2.3.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to the SNE lobster resource as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.3.2.3.3.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to the SNE lobster resource than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to the SNE lobster resource than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.3.2.3.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to the SNE lobster resource compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.3.3 Reporting

7.3.3.1 No Action

The no action alternative is expected to result in no direct impacts and slight negative indirect impacts on to the target species, American lobster. The lack of mandatory harvester reporting is not expected to alter existing fishing practices or operations. Harvesters will continue to target and catch lobsters, regardless of whether mandatory harvester reporting is approved. Therefore, no direct impacts to the target species are expected to result from not approving mandatory harvester reporting.

No action will continue to provide only a partial picture of the American lobster fishery due to geographic gaps in spatial data that help us understand the effort levels and location of the fishery that are important for lobster stock assessments. Continuing the current level of fishery dependent information in the lobster fishery would limit the potential to manage and brace for economic and biological factors due to the effects of climate change on lobster stocks and the lobster fishery. The Lobster Board's ability to sustainably manage the lobster resource would be hampered without more comprehensive fishery dependent data through harvester reporting. The continued lack of spatial data will further impede our understanding of the implications and impacts of non-fishery activities (e.g. large whale interactions, marine energy projects, area closures to protect habitat) on fishermen and the lobster resource, yielding slight negative indirect impacts.

Compared to the alternatives that establish harvester reporting, the No Action alternative would result in the same direct impacts (no impact) but a higher degree of negative indirect impacts on the lobster resource, as information would not be readily available to inform management decisions.

7.3.3.2 Electronic Trip-Level Reporting

The preferred alternative, electronic trip-level harvester reporting for all Federal lobster permit holders including additional data fields, is expected to have no direct impacts and slight positive indirect impacts to the target species, American lobster. Approving mandatory harvester reporting is not expected to alter existing fishing practices or operations. Harvesters will continue to target and catch lobsters, regardless of whether mandatory harvester reporting is approved. Therefore, no direct impacts to the target species are expected to result from approving mandatory harvester reporting.

The preferred alternative is expected to have slight positive indirect impacts to the American lobster resource. The implementation of an electronic trip-level harvester reporting requirement with additional data fields for all Federal lobster vessels will fill the current data gap that exists in the Gulf of Maine, where many Federal lobster vessel fish but do not currently submit trip-level reports. Trip-level VTRs will improve the spatial resolution of the harvester data, which would improve the overall data available for stock assessments and fishery management. The Gulf of Maine is responsible for the highest levels of fishing effort in the U.S. lobster fishery and supports the vast majority of the lobster biomass. However, less than 23 percent (377 of 1,652) of vessels eligible to fish with traps in Area 1, the predominant Gulf of Maine lobster management area, are required to report trip-level landings. Expanding the VTR to these permit holders will complete the spatial picture for the lobster fishery and provide scientists and managers with important effort and catch information that is currently not available.

This additional spatial information will assist in the overall stock assessment and management of the lobster resource and could help to further understand the interplay between the offshore and inshore components of the Gulf of Maine/Georges Bank lobster stock. It will also provide more information on effort trends in the fishery and the interaction between offshore movements of lobster biomass and the associated shifts in effort in the lobster fishery. This data would be beneficial to the Lobster Board in understanding factors that can help make adjustments to the fishery in response to economic and

biological impacts to the fishery and resource that could result from climate change. Therefore, slight positive indirect impacts are expected.

Compared to the no action alternative, the preferred alternative is expected to have the same direct impacts (no impact) and slightly more positive indirect impacts because information would be available to inform management decisions. Compared to the paper reporting alternative, the preferred alternative is expected to have the same direct and slightly more indirect impacts on the lobster resource because the data generated from electronic reporting are expected to be more readily available and comprehensive. Data quality is expected to be higher, as quality control functions would be permissible at a user level. Less time needed to address data inconsistencies or errors will speed the availability of information for scientific and management purposes.

7.3.3.3 Trip Level Reporting with Paper

The paper-reporting alternative with additional data fields for all Federal lobster permit holders is expected to have no direct impacts and slight positive indirect impacts to the target species, American lobster. Approving mandatory harvester reporting is not expected to alter existing fishing practices or operations. Harvesters will continue to target and catch lobsters, regardless of whether mandatory harvester reporting is approved. Therefore, no direct impacts to the target species are expected to result from approving mandatory harvester reporting.

The paper-reporting alternative is expected to have slight positive indirect impacts on the lobster resource, similar to those expected with the preferred (mandatory electronic reporting) alternative. Acquiring the harvester information, even in a paper format, is more beneficial to the lobster resource than the status quo option, but it is comparatively less beneficial to the lobster resource when compared to the preferred option due to the lack of internal quality control, administrative burdens, and delay in availability that would result from a paper submission. Therefore, slight positive indirect impacts can be expected.

Compared to the no action alternative, the paper-reporting alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts because information would be available to inform management decisions. Compared to the preferred alternative, the paper-reporting alternative is expected to have the same direct impact (no impact) and slightly less positive indirect impacts on the lobster resource because the data generated from paper reporting would not be available as quickly or comprehensively as it would through an electronic submission. Data quality will likely be reduced in the shorter term because paper submissions would not allow for the quality control functions of the electronic systems at the user level. Without the electronic quality control functions, harvesters could submit data outside the parameters that are admissible, requiring administrative time to circle back and follow up with the harvester to ground truth the information. More time to address data inconsistencies or errors, along with the additional time needed to process and manually enter the paper data, will delay the availability of the information for scientific and management purposes.

7.4 Impacts of the Alternatives on Other Affected Species

This section considers the impacts of the management alternatives described in Section 5.0 on other affected species, including bycatch and bait.

7.4.1 Area 2 Alternatives

7.4.1.1 No Action

The no action alternative is expected to result in slight positive impacts on other affected species. Most bait and bycatch species are managed through their own fishery management plans. These fishery management plans aim to maintain not overfished/not overfishing status, or promote rebuilding if the

fishery is overfished or overfishing is occurring. These fishery management plans also take targeted and incidental harvest into account when setting management measures, all of which results in positive impacts to other affected species. While traps have been reduced by the final year of trap reductions and continue to be transferred through the trap transfer program, a single ownership cap would not be implemented. Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. Despite this, the no action alternative would do nothing to further address poor condition of the SNE stock and remove latent effort by instituting a single ownership trap cap. Current levels of bait would continue to be used in traps. Management measures directly regulating other affected species would not change and most other affected species remain in good condition (i.e., stock status). Existing lobster regulations under the no action maintain that positive stock status. Therefore, the fishery would continue to have the same slight positive impact on other affected species.

The no action alternative would result in the slightly less positive impacts to other affected species than the preferred alternative because the preferred alternative would place ownership caps on Area 2 entities that could limit future business operations and thus impacts to/usage of other affected species. The no action alternative would result in similar slight positive impacts to other affected species as the 1,600-trap alternative because the 1,600 trap alternative institutes an ownership cap that is above what would currently restrict the fishery, thus allowing the fishery to operate as status quo.

7.4.1.2 Modified Commission Area 2 Alternative

The preferred alternative is expected to result in slight positive impacts on other affected species. Most bait and bycatch species are managed through their own fishery management plans. These fishery management plans aim to maintain not overfished/not overfishing status, or promote rebuilding if the fishery is overfished or overfishing is occurring. These fishery management plans also take targeted and incidental harvest into account when setting management measures, all of which results in positive impacts to other affected species. In addition, traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges.

The preferred alternative would cap most entities at 800 active traps, beginning May 1, 2023 This option would establishing a de facto owner-operator fishery for the majority of the Area 2 fishery. However, it would allow entities with permits and traps in excess of this limit to retain those permits and traps, but not own or share ownership of any additional permits or traps. As such, these entities would be limited to their current permits/trap allocations. In the short term, this alternative limits the fishery to the status quo. In the longer term, however, it places caps on the fishery which could limit future business considerations, fishing practices, or soak times. Such limits may positively impact marine species that are incidentally caught in lobster traps if less traps are able to be fished, but those impacts would be slight. In addition, slight positive impacts to bait could be expected if limits on ownership limit the prosecution of the fishery.

The preferred alternative is expected to result in the slightly more positive impacts on other affected species that either the no action or the 1,600-trap alternative. The preferred alternative places ownership caps on Area 2 entities that could limit future business operations and thus limits future impacts to/usage of other affected species.

7.4.1.3 1,600 Trap Alternative

This alternative would limit all Area 2 entities to 1,600 traps, regardless of the number of permits owned. Those entities who already have more than 1,600 traps would forfeit the difference, but would be allowed to engage in the trap transfer program to eliminate excess traps.

The 1,600-trap alternative is expected to result in slight positive impacts on other affected species. Most bait and bycatch species are managed through their own fishery management plans. These fishery management plans aim to maintain not overfished/not overfishing status, or promote rebuilding if the fishery is overfished or overfishing is occurring. These fishery management plans also take targeted and incidental harvest into account when setting management measures, all of which results in positive impacts to other affected species. While traps have been reduced by the final year of trap reductions and continue to be transferred through the trap transfer program, instituting a 1,600-trap cap fails to implement further limits on the fishery. Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. Despite the fact that the 1,600 trap alternative would do nothing to further address poor condition of the SNE stock and remove latent effort by instituting a single ownership trap cap and current levels of bait would continue to be used in traps, the fishery would continue to have slight positive impacts on other affected species.

The 1,600-trap alternative would result in similar slight positive impacts to other affected species as the no action alternative because both scenarios allow the fishery to operate as status quo. The 1,600-trap alternative would result in the same slight positive impacts to other affected species than the preferred alternative because the preferred alternative places ownership caps on Area 2 entities that could limit future business operations and thus future impacts to/usage of other affected species.

7.4.2 Area 3 Alternatives

7.4.2.1 No Action

The no action alternative is expected to result in slight positive impacts on other affected species. While traps have been reduced through 5 years of scheduled trap reductions and continue to be transferred through the trap transfer program, the active trap cap and aggregate ownership cap would not be implemented. Thus, an additional check on latent effort and future trap activation through the use of the trap transfer program would not be implemented. Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. Despite this, the no action could result an increase in the conversion of latent traps into active traps and would do nothing to further address poor condition of the SNE stock. Current levels of bait would continue to be used in traps. Management measures directly regulating other affected species would not change and most other affected species remain in good condition (i.e., stock status). Existing lobster regulations under the no action maintain that positive stock status. Therefore, the fishery would continue to have the same slight positive impact on other affected species.

The no action alternative would result in the less positive impacts to other affected species than the preferred alternative or the Modified Commission Area 3 alternative because it would not institute trap cap reductions, ownership caps, and no traps may be retired from the fishery.

7.4.2.2 Adjusted Ownership Cap Alternative (preferred)

The preferred alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (7,740 traps) in Addenda XXI and XXII, with modifications to the aggregate caps from what the Commission recommended and omission of the individual permit caps, as shown in Table 5. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap.

The preferred alternative is expected to result in slight positive impacts on other affected species. Other affected species are managed by independent fishery management plans, which aim to maintain not overfished/not overfishing status, or promote rebuilding if the fishery is overfished or overfishing is occurring. These fishery management plans also take targeted and incidental harvest into account when setting management measures, all of which results in positive impacts to other affected species.

Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. Management measures directly regulating other affected species would not change and most other affected species remain in good condition (i.e., stock status).

The implementation of the individual and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps, depending on the control date sub-alternative selected, described in detail in Section 7.2.2.2 and summarized in Table 51 above. If these traps are permanently retired from the fishery, it further positively impact other affected species through reductions in effort and fishing mortality. As these reductions are small in comparison to the number of traps allocated in Area 3 and may be further reduced by these permit holders transferring these traps to other permit holders before the reductions are implemented, the impact to bycatch species is qualified as slight. In addition, slight positive impacts to bait could be expected if a smaller number of traps remain in the fishery, as less bait will be needed for those traps. Further, due to this action having minimal impacts on stock status of other affected species, slight positive impacts are expected.

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 7,740 traps in this alternative. Further, although active trap allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and

2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on other affected species and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The preferred alternative would have more positive impacts than the no action alternative because the preferred alternative has the possibility of removing traps from the fishery and limiting future consolidation. The preferred alternative would have the same slight positive impacts as the Modified Commission Area 3 alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.4.2.2.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

Accordingly, this could retire approximately 12,000 traps from the fishery, as shown in Table 52. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have the most positive impacts on other affected species when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.4.2.2.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing

it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.2.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.2.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.2.2.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 54 above.

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have less positive impacts on other affected species when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have more positive impacts on other affected species when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.4.2.2.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions

would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.2.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.2.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.2.2.3 Current Permit Data (as of May 1, 2019) Approach (Preferred)

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 7,740 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the current permit data Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have least positive impacts on other affected species when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.4.2.2.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing

it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.2.3.2 Three Year Allocation Cap Reduction (Preferred)

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.2.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.2.3 Modified Commission Area 3 Alternative

The Modified Commission Area 3 alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (9,000 traps), as recommended in Addenda XXI and XXII and shown in Table 7. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active.

The Modified Commission Area 3 alternative is expected to result in slight positive impacts on other affected species. Other affected species are managed by independent fishery management plans, which aim to maintain not overfished/not overfishing status, or promote rebuilding if the fishery is overfished or overfishing is occurring. These fishery management plans also take targeted and incidental harvest into account when setting management measures, all of which results in positive impacts to other affected species.

Traps used in commercial lobster fisheries are among the more selective types of fishing gear and overall levels of bycatch in the lobster fishery is relatively low compared to other marine fisheries. Further, species caught in traps are likely to be discarded with lower mortality rates than those caught with other gear types such as trawls and dredges. Management measures directly regulating other affected species would not change and most other affected species remain in good condition (i.e., stock status).

The implementation of the individual and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps, depending on the control date sub-alternative selected, described in detail in Section 7.2.2.2 and summarized in Table 51. If these traps are permanently retired from the fishery, it further positively impact other affected species through reductions in effort and fishing mortality. As these reductions are small in comparison to the number of traps allocated in Area 3 and may be further reduced by these permit holders transferring these traps to other permit holders before the reductions are implemented, the

impact to bycatch species is qualified as slight. In addition, slight positive impacts to bait could be expected if a smaller number of traps remain in the fishery, as less bait will be needed for those traps. Further, due to this action having minimal impacts on stock status of other affected species, slight positive impacts are expected.

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 9,000 traps in this alternative. Further, although active trap allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and 2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on other affected species and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The modified Commission Area 3 alternative would have more positive impacts on other affected species than the no action alternative because the modified Commission alternative has the possibility of removing traps from the fishery and limiting future consolidation. The modified Commission alternative would have the same slight positive impacts on other affected species as the preferred alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.4.2.3.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year,

including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

Accordingly, this could retire approximately 12,000 traps from the fishery, as shown in Table 52. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have the most positive impacts on other affected species when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.4.2.3.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.3.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.3.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.2.3.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits

affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 above.

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have less positive impacts on other affected species when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have more positive impacts on other affected species when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.4.2.3.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.3.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.3.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.2.3.3 Current Permit Data (as of May 1, 2019) Approach

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 9,000 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that

could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.4.2.2, the current permit data Alternative, and its sub-options, are expected to have slight positive impacts on other affected species. This alternative would have least positive impacts on other affected species when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.4.2.3.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly more positive impacts to other affected species as the other sub-alternatives, as the reductions would take place as quickly as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.4.2.3.3.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly less positive impacts to other affected species than the single year reduction timeframe, because it will take longer to achieve the total reduction and permit holders will have additional opportunity to sell permits or transfer traps to mitigate losses. The three-year timeframe alternative would result in slightly more positive impacts to other affected species than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.4.2.3.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly less positive impacts to other affected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.4.3 Reporting

7.4.3.1 No Action

The no action alternative is expected to result in no direct impacts and slight negative indirect impacts on other affected species. The lack of mandatory harvester reporting is not expected to alter existing fishing practices or operations. Traps would continue to be set, which can be expected to catch lobster, and to a lesser degree Jonah crab and red crab, regardless of mandatory harvester reporting is approved. Bait would be used to catch lobsters, regardless of whether mandatory harvester reporting is approved.

Therefore, no direct impacts on other affected species are expected to result from not approving mandatory harvester reporting.

We expect slight negative indirect impacts to other affected species if we take no action and allow the current level of harvester reporting to continue. Fishermen who are required to fill out a VTR must report all species caught, characterize them as kept or discarded, and provide the reason for discarding them. This catch disposition information is not only important for the target species sought on a given trip; it provides important information on bycatch levels of discarded species that helps in documenting catch. This is particularly critical information for species that are managed by annual catch limits as this catch accounting applies directly to the operation of these fisheries. Catch information is constantly monitored in such cases to determine when trip limits should be reduced, or the fishery closed altogether. Failing to expand reporting requirements to the entire Federal lobster fleet maintains our non-representative data collection program, limiting our ability to fully quantify bycatch in the lobster fishery. Therefore, slight negative indirect impacts are expected.

Compared to the alternatives that establish harvester reporting, the No Action alternative would result in the same direct impacts (no impact) but a higher degree of negative indirect impacts on other affected species, as information would not be readily available to inform management decisions.

7.4.3.2 Electronic Trip Level Reporting

The preferred alternative, electronic trip-level harvester reporting for all Federal lobster permit holders including additional data fields, is expected to have no direct impacts and slight positive indirect impacts to other affected species. Harvester reporting is not expected to alter existing fishing practices or operations. Traps would continue to be set, which can be expected to catch lobster, and to a lesser degree Jonah crab and red crab, regardless of mandatory harvester reporting is approved. Bait would be used to catch lobsters, regardless of whether mandatory harvester reporting is approved. Therefore, no direct impacts on other affected species are expected to result from mandatory harvester reporting.

Providing trip-level data with additional data fields in an electronic format will indirectly benefit non-target species, especially those that are managed by annual catch limits and quotas. Expanding an electronic VTR requirement to the entire Federal lobster fleet could improve the data availability on bycatch species and speed that it is received. In turn, this information could be more effectively applied to the understanding of the level of bycatch by species taken in lobster gear. The management of both regulated and unregulated species relies on overall catch, including the discard, of each species. This more accurate information on the catch of these species will be used by managers to ensure that the catch limit are not exceed because by accounting for an attributing this bycatch to the overall catch, they can implement in-season actions that can close a fishery or reduce the trip limits to avoid exceeding the catch limits. Currently, managers can only make estimates using the subset of Federal lobster permit holders who are currently required to submit a VTR for each trip. Having all lobstermen report will close this data gap and provide a more comprehensive data set for use in fishery management. In addition, electronic submission will speed the availability and may improve the quality of the date received. Therefore, slight positive indirect impacts could be expected from requiring an electronic trip report.

Compared to the no action alternative, the preferred alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts on other affected species because information would be available to inform management decisions. Compared to the paper-reporting alternative, the preferred alternative is expected to have the same direct impact (no impact) and slightly more positive indirect impacts on other affected species because the data generated from electronic reporting are expected to be more readily available and comprehensive. Data quality is expected to be higher, as quality control functions would be permissible at a user level. Less time needed to address data

inconsistencies or errors will speed the availability of information for scientific and management purposes.

7.4.3.3 Trip Level Reporting with Paper

The paper-reporting alternative with additional data fields is expected to have no direct impacts and slight positive indirect impacts to other affected species. Harvester reporting is not expected to alter existing fishing practices or operations. Traps would continue to be set, which can be expected to catch lobster, and to a lesser degree Jonah crab and red crab, regardless of mandatory harvester reporting is approved. Bait would be used to catch lobsters, regardless of whether mandatory harvester reporting is approved. Therefore, no direct impacts on other affected species are expected to result from mandatory harvester reporting.

The paper-reporting alternative is expected to have slight positive indirect impacts on other affected species, similar to those expected with the preferred (mandatory electronic reporting) alternative. The additional catch information provided in the VTRs will help to characterize and quantify catch of non-target species in the lobster fishery. This data will improve the accuracy of management actions in place to govern the non-target species and will be used to calculate quotas and manage these fisheries with respect to their biological reference points and other parameters of their management plans. However, paper reporting would increase administrative burdens and potentially increase delay in availability.

Compared to the no action alternative, the paper-reporting alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts to other affected species because information would be available to inform management decisions. Compared to the preferred alternative, the paper-reporting alternative is expected to have the same direct and slightly less positive indirect impacts to other affected species because the data generated from paper reporting would not be available as quickly or comprehensively as it would through an electronic submission. Data quality will likely be reduced in the shorter term because paper submissions would not allow for the quality control functions of the electronic systems at the user level. Without the electronic quality control functions, harvesters could submit data outside the parameters that are admissible, requiring administrative time to circle back and follow up with the harvester to ground truth the information. More time to address data inconsistencies or errors, along with the additional time needed to process and manually enter the paper data, will delay the availability of the information for scientific and management purposes.

7.5 Impacts of the Alternatives on the Physical Environment

This section considers the impacts of the management alternatives described in Section 5.0 on the physical environment.

7.5.1 Area 2 Alternatives

7.5.1.1 No Action

The no action alternative is expected to result in slight negative impacts on the physical environment. Under the no action, existing fishery regulations allow trap gear to be used, which are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance. Each trap, however, has a limited and minimal footprint on the bottom and the gear is often fished in areas where the habitat was previously disturbed by other, more destructive fishing activities. Therefore, in general, impacts of the no action on habitat are minor, especially when compared to mobile bottom-tending gear (Morgan and Chuenpagdee 2003, NEFSC 2002a). Therefore, slight negative impacts are expected because the no action alternative will allow some traps to have contact with bottom habitat.

While traps have been reduced by the final years of trap reductions and continue to be transferred through the trap transfer program, a single ownership cap would not be implemented. Thus, an additional check on latent effort and future trap activation would not be implemented. Based on discussion presented in Sections 4.4 and 6.5.4 we see that fishing capacity for the Area 2 fleet has been substantially reduced. However, the change in impacts to the physical environment from the ongoing trap reductions are difficult to quantify because it is unclear how many traps that were removed from the fishery were active traps. Further, it is difficult to determine whether reductions in the scale of the average Area 2 lobster business would change fishing behavior in a way that would continue to affect habitat to the same extent as before the reductions began. Given all this, a slight negative impact to the physical environment is expected from the no action.

The no action alternative would result in slightly more negative impacts to the physical environment than the preferred alternative because the preferred alternative has the possibility of placing future limits on ownership in the Area 2 trap fishery. The no action alternative would result in similar impacts (slight negative impacts) to the physical environment as the 1,600-trap alternative because the 1,600 trap alternative institutes an ownership cap that is above what would currently restrict the fishery, thus allowing the fishery to operate as status quo.

7.5.1.2 Modified Commission Area 2 Alternative

The preferred alternative is expected to result in slight negative impacts on the physical environment. As discussed in greater detail in the no action alternative, traps used in the fishery are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance, resulting in some negative impacts.

The preferred alternative would cap most entities at 800 active traps, beginning May 1, 2023 This option would establishing a de facto owner-operator fishery for the majority of the Area 2 fishery. However, it would allow entities with permits and traps in excess of this limit to retain those permits and traps, but not own or share ownership of any additional permits or traps. As such, these entities would be limited to their current permits/trap allocations. It would do little, however, to adjust allocations to account for latent effort in the near-term. In the longer term, capping ownership requirements could prevent the reactivation of latent effort, therefore limiting the negative impact of this trap fishery on the physical environment to slight negative.

The preferred alternative is expected to result in slightly less negative impacts on the physical environment that either the no action or the 1,600-trap alternative. The preferred alternative would institute an ownership cap that would limit future business operations, curb latent effort, and thus limits future impacts to the physical habitat.

7.5.1.3 1,600 Trap Alternative

This alternative would limit all Area 2 entities to 1,600 traps, regardless of the number of permits owned. Those entities who already have more than 1,600 traps would forfeit the difference, but would be allowed to engage in the trap transfer program to eliminate excess traps.

The 1,600-trap alternative is expected to result in slight negative impacts on the physical environment. As discussed in greater detail in the no action alternative, traps used in the fishery are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance, resulting in some slight negative impacts. While traps have been reduced by the final year of trap reductions and continue to be transferred through the trap transfer program, instituting a 1,600-trap cap fails to institute further limits on the fishery similar to the status quo under the no action

alternative. In other words, after trap reductions reduce effort, a 1,600 trap cap would allow active effort to be built back up by activating latent effort, continuing to result in slight negative impacts to the physical environment.

The 1,600-trap alternative would result in the same slight negative impacts to the physical environment as the no action alternative because neither alternative places future restrictions on the fishery. The 1,600-trap alternative would result in slightly more negative impacts to the physical environment than the preferred alternative because the preferred alternative would implement ownership caps on the Area 2 fishery, which may limit latent effort and decrease contact of the overall number of traps interacting with bottom habitat.

7.5.2 Area 3 Alternatives

7.5.2.1 No Action

The no action alternative is expected to result in slight negative impacts on the physical environment. Under the no action, existing fishery regulations allow trap gear to be used, which are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance. Each trap, however, has a limited and minimal footprint on the bottom and the gear is often fished in areas where the habitat was previously disturbed by other, more destructive fishing activities. In general, impacts of the no action on habitat are minor, especially when compared to mobile bottom-tending gear (Morgan and Chuenpagdee 2003, NEFSC 2002a).

While traps have been reduced through 5 years of scheduled trap reductions and continue to be transferred through the trap transfer program, the active trap cap and aggregate ownership cap would not be implemented. Thus, an additional check on latent effort and future trap activation through the use of the trap transfer program would not be implemented. The no action could result an increase in the conversion of latent traps into active traps and would do nothing to further address poor condition of the SNE stock. The change in impacts to the physical environment from the ongoing trap reductions are difficult to quantify because it is unclear how many traps that were removed from the fishery were active traps. Further, it is difficult to determine whether reductions in the scale of the average Area 3 lobster business would change fishing behavior in a way that would continue to affect habitat to the same extent as before the reductions began. Given all this, a slight negative impact to the physical environment is expected from the no action. Therefore, slight negative impacts are expected because the no action alternative will allow traps to have contact with bottom habitat.

The no action alternative would result in the more negative impacts to the physical environment than the preferred alternative or the Modified Commission Area 3 alternative because it would not institute trap cap reductions or ownership caps, and no traps may be retired from the fishery.

7.5.2.2 Adjusted Ownership Cap Alternative (preferred)

The preferred alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (7,740 traps) in Addenda XXI and XXII, with modifications to the aggregate caps from what the Commission recommended and omission of the individual permit caps, as shown in Table 5. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap.

The preferred alternative is expected to result in slight negative impacts on the physical environment. As discussed in greater detail in the no action alternative, traps used in the fishery are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance, resulting in some negative impacts.

The implementation of the individual and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps, depending on the control date sub-alternative selected, described in detail in Section 7.2.2.2 and summarized in Table 52 below. If these traps are permanently retired from the fishery, it may positively impact the physical environment through reductions in effort. The impact to the physical environment is qualified as slight because these reductions are small in comparison to the number of traps allocated in Area 3 and may not be fully realized if the permit holders transfer these traps to other permit holders before the reductions are implemented. The impacts of the various control dates and trap cap reduction timeframe sub-options are discussed in greater detail in the following sub-sections.

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 7,740 traps in this alternative. Further, although active trap allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and 2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on the physical environment and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The preferred alternative would have less negative impacts on the physical environment than the no action alternative because the preferred alternative has the possibility of removing traps from the fishery and limiting future consolidation. The preferred alternative would the same slight negative impacts on the physical environment as the Modified Commission Area 3 alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.5.2.2.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

Accordingly, this could retire approximately 12,000 traps from the fishery, as shown in Table 52. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have the least negative impacts on the physical environment when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.5.2.2.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.2.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.2.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.2.2.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 above.

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have more negative impacts on the physical environment when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have less negative impacts on the physical environment when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.5.2.2.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.2.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.2.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest

period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.2.2.3 Current Permit Data (as of May 1, 2019) Approach (Preferred)

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 7,740 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have the most negative impacts on the physical environment when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.5.2.2.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.2.3.2 Three Year Allocation Cap Reduction (Preferred)

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.2.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.2.3 Modified Commission Area 3 Alternative

The Modified Commission Area 3 alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (9,000 traps), as recommended in Addenda XXI and XXII and shown in Table 7. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active.

The Modified Commission Area 3 alternative is expected to result in slight negative impacts on the physical environment. As discussed in greater detail in the no action alternative, traps used in the fishery are weighted to sit on the ocean floor and, therefore, have, at worst, some negative impact to bottom habitat because they create habitat disturbance, resulting in some negative impacts.

The amount of traps reduced by the aggregate caps is dependent upon the control date that is chosen. We know that the vast majority of Area 3 entities (all but 2) do not have aggregate allocations that have exceeded even the final aggregate cap of 9,000 traps in this alternative. Further, although active trap allocations for some permits have increased over the last several years due to trap transferability, the annual trap reductions have reduced the overall Area 3 allocation by close to 25 percent. Consequently, we would consider the current allocations for the majority of Area 3 entities as the basis for the active and aggregate traps cuts.

For the minority of entities whose current aggregate allocations exceed the aggregate ownership cap, sub-alternatives below consider the impacts to the lobster resource at three different points in time: As of the 2014 control date; as of the 2017 control date; and as of the start of fishing year 2019 (as a proxy for current allocations). For these permit holders, we first compared their starting allocation in 2014 and 2017 to their 2019 allocation, to determine how many traps would be reduced as a result of the control dates, ranging from 0 to approximately 6,000 traps. Next, we examined these entities' 2014, 2017, and 2019 trap allocation for each permit to determine the number of traps that exceed the lowest future trap cap (1,548 traps). These excess number of traps for these entities is summarized in Table 51. The number of traps that exceeds the maximum trap cap varies by control date, ranging from approximately 1,000 traps to 7,000 traps, and is discussed in the control date sub-alternatives below. Finally, for the other permit holders not affected by the control date, we determined that a total of 4,655 traps would exceed the ultimate trap cap of 1,548 traps, as presented in Table 51.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on the physical environment and compare between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The Modified Commission Area 3 alternative would have less negative impacts on the physical environment than the no action alternative because it has the possibility of removing traps from the fishery and limiting future consolidation. The Modified Commission Area 3 alternative would the same slight negative impacts on the physical environment as the preferred alternative because both alternatives would result in the same number of traps that could be retired from the fishery.

7.5.2.3.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

Accordingly, this could retire approximately 12,000 traps from the fishery, as shown in Table 52. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have the least negative impacts on the physical environment when compared to the 2017 control date option or current permit data, because it could result in the highest number of traps being retired from the fishery.

7.5.2.3.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.3.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.3.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.2.3.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 above.

Accordingly, this could retire approximately 11,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have more negative impacts on the physical environment when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. This alternative would have less negative impacts on the physical environment when compared to using current permit data because it could result in the highest number of traps being retired from the fishery.

7.5.2.3.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.3.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.3.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest

period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.2.3.3 Current Permit Data (as of May 1, 2019) Approach

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 9,000 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

Accordingly, this could retire approximately 9,000 traps from the fishery. The three reduction timeframes all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented. While this analysis attempts to quantify the number of traps that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program.

As provided in Section 7.5.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative impacts on the physical environment. This alternative would have the most negative impacts on the physical environment when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery.

7.5.2.3.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction in one year. This would result in slightly less negative impacts to the physical environment as the other sub-alternatives, as the reductions would take place as soon as possible. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.5.2.3.3.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to the physical environment than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to the physical environment than the five-year timeframe alternative, as the total reductions would be achieved sooner.

7.5.2.3.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to the physical environment compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions.

7.5.3 Reporting

7.5.3.1 No Action

The no action alternative is expected to result in no direct impacts and slight negative indirect impacts on the physical environment. Harvesters are expected to set traps to target lobsters, regardless of whether mandatory harvester reporting is approved in the fishery. As previously discussed, trap gear has a minimal footprint on the bottom, and, conservatively results in slight low negative impacts on habitat. This measure would implement no additional reporting requirements for harvesters, which would be completed after gear is deployed and hauled. Because failing to establish harvester report does not alter the effort, location, or timing of the fishery, no direct impacts are expected to result from not approving mandatory harvester reporting.

Continuing with the current level of harvester data collection would have slight negative indirect impacts on the physical environment. The limited amount of spatial data on the lobster fishery available through the current harvester reporting requirements do not provide an accurate accounting of where the fishery takes place and the level of fishing effort in specific areas. This inhibits the ability to assess the impacts to, or from, the lobster fishery on habitat-related actions. For example, the lack of spatial data on the fishery impeded the evaluation of impacts to the lobster industry from alternatives in the New England Fishery Management Council's Coral Amendment. The amendment considered management measures by depth and location to help protect marine corals from fishing gear. The limitation on the spatial data complicated the assessment of the impacts of lobster gear on the subject areas, as well as the potential impacts to the fishery for the different alternatives. Continuing with the current level of reporting through the no action will impede the assessment of habitat impacts from the lobster fishery, which would be more evident with mandatory reporting for all harvesters. Therefore, slight negative indirect impacts can be expected from the no action.

Compared to the alternatives that establish harvester reporting, the No Action alternative would result in the same direct impacts (no impact) but a higher degree of negative indirect impacts on the physical environment, as information would not be readily available to inform management decisions.

7.5.3.2 Electronic Trip Level Reporting

The preferred alternative, electronic trip-level harvester reporting for all Federal lobster permit holders including additional data fields, is expected to have no direct impacts to the physical environment and slight positive indirect impacts. Harvesters are expected to set traps to target lobsters, regardless of whether mandatory harvester reporting is approved in the fishery. This measure would implement mandatory electronic reporting requirements for harvesters, which would be completed after gear is deployed and hauled. Because failing to establish harvester report does not alter the effort, location, or timing of the fishery, no direct impacts are expected to result from not approving mandatory harvester reporting.

Mandatory electronic harvester reporting with additional data fields is expected to result in slight positive indirect impacts to the physical environment. It will improve the data available for monitoring fishing-related impacts to habitat. The spatial information that is generated by expansion of the VTR requirements, especially through electronic collection, to the entire lobster fishery will more accurately inform scientists and managers about where the fishery is taking place to better inform management and conservation of important marine habitats. Mandatory reporting would improve the set of spatial data parameters such as depth, fishing location, soak time, and distance from shore that would be helpful in assessing the impacts to marine habitat and allowing for a better understanding of the trend in offshore movement of the fishery, which may have implications for habitat conservation and fishery management.

Additionally, it will allow the industry to more extensively and definitively quantify where they are or are not fishing to inform these decisions and allow for the assessment of impacts to the industry associated with management actions to protect marine habitat.

Compared to the no action alternative, the preferred alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts on the physical environment because more comprehensive information would be available to inform management decisions. Compared to the paper reporting alternative, the preferred alternative is expected to have the same direct impacts (no impact) and slightly more positive indirect impacts on the physical environment because the data generated from electronic reporting are expected to be more readily available and comprehensive. Data quality is expected to be higher, as quality control functions would be permissible at a user level. Less time needed to address data inconsistencies or errors will speed the availability of information for scientific and management purposes.

7.5.3.3 Trip Level Reporting with Paper

The paper-reporting alternative with additional data fields is expected to have no direct impacts to other affected species and slight positive indirect impacts. Harvesters are expected to set traps to target lobsters, regardless of whether mandatory harvester reporting is approved in the fishery. This measure would mandatory paper-reporting requirements for harvesters, which would be completed after gear is deployed and hauled. Because failing to establish harvester report does not alter the effort, location, or timing of the fishery, no direct impacts are expected to result from not approving mandatory harvester reporting.

The paper-reporting alternative is expected to have slight positive indirect impacts on the physical environment, similar to those expected with the preferred (mandatory electronic reporting) alternative. This additional data will help to inform management decisions and better prepare the industry and managers when considering issues regarding habitat impacts. This option will help in the evaluation of impacts to the fishery and industry concerning marine energy and marine conservation directives by providing better data on where the fishery occurs. Ultimately, the benefits are nearly the same as the preferred alternative, except that the timeliness of the availability of the data for science and management purposes would be diminished due to paper submission and the time needed to correct errors and manually enter the information.

Compared to the no action alternative, the paper-reporting alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts on the physical environment because information would be available to inform management decisions. Compared to the preferred alternative, the paper-reporting alternative is expected to have the same direct impacts (no impact) and slightly less positive indirect impacts on the physical environment because the data generated from paper reporting would not be available as quickly or comprehensively as it would through an electronic submission. Data quality will likely be reduced in the shorter term because paper submissions would not allow for the quality control functions of the electronic systems at the user level. Without the electronic quality control functions, harvesters could submit data outside the parameters that are admissible, requiring administrative time to circle back and follow up with the harvester to ground truth the information. More time to address data inconsistencies or errors, along with the additional time needed to process and manually enter the paper data, will delay the availability of the information for scientific and management purposes.

7.6 Impacts of the Alternatives on Protected Species

This section considers the impacts of the management alternatives described in Section 5.0 on protected species. Specifically, given the documented interactions with pot/trap gear (see Section 6.5), protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) will be considered in the following analyses.

7.6.1 Area 2 Alternatives

7.6.1.1 No Action

The no action alternative is expected to result in slight to high moderate negative impacts to protected species (ESA listed and MMPA protected species). As discussed in Section 6.4.3, protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type. The risk of an interaction is associated with the quantity of gear in the water (e.g., number of vertical lines), gear soak/tow duration, and the temporal and spatial overlap of the gear and protected species. Increases in any of these factors equates to elevated interaction risk to protected species. As the lobster fishery uses pot/trap gear, and the distribution of protected species of large whales (North Atlantic right, humpback, minke, fin, sei), bottlenose dolphins, and sea turtles (leatherback, loggerhead, Kemp's ridley, green) overlaps with the lobster fishery operating in Area 2, interactions with protected species are possible and some level of negative impacts to protected species is likely.

Under the no action, all lobstermen with a Federal Area 2 allocation would be allowed to continue to maintain their current allocations, with only a single year of trap reductions remaining (effective at the start of the 2021 fishing year). As discussed in Section 4.4 and Section 6.1.4, these trap reductions have substantially reduced the number of total traps allocated in Area 2. Traps would also continue to be transferred through the trap transfer program under the no action; however, a single ownership cap would not be implemented. As a result, a permit holder could continue to own an unlimited number of Federal lobster permits and each of those permits could acquire up to the fishable allocation of 800 Area 2 traps. The no action implements no additional measures to curb latent effort or reduce traps and thus could lead to increased effort in the long term. With no limits on the number of permits or traps a permit holder could retain, a permit holder could purchase a latent vessel with an Area 2 lobster permit, and actively fish it. In this worst case scenario, impacts to protected species would continue to be negative. However, due to the poor condition of the SNE resource and the Area 2 fishery, incentives remain low for latent effort to active, resulting in a continuation of the 'status quo.". Thus, there is a low likelihood that a permit holder would purchase a latent vessel and permit and active it. As such, the location and quantity of pot/trap gear, and thus, number of vertical lines used in lobster fishery and associated management areas are also not expected to change significantly.

As noted above, interactions risks with protected species are strongly associated with the amount of gear in the water, gear soak or tow time, as well as the area of overlap, either in space or time, of the gear and a protected species. Under a worst case scenario of latent effort activating, additional vertical lines associated with previously latent traps would likely increase, resulting in high moderate negative impacts to protected species. However, continuation of "status quo" fishing behavior/effort is not expected to change any of these operating conditions, given that incentives remain low due to the condition of the SNE stock. Specifically, relative to status quo operating conditions, there will be no change in area fished, and therefore, the level of overlap between pot/trap gear and protected species. The number of vertical lines in the water and the duration of time gear is set are not expected to increase under the no

action, relative to status quo operating conditions. In addition, under the no action, all lobstermen will continue to comply with ALWTRP regulations (e.g., Area 2 trap-per-trawl requirements, weak links). Based on this, relative to current conditions, new or elevated (e.g., more gear, longer soak time) interaction risks to protected species are not expected. Taking into consideration the above, as well as information on the status of the species and the entanglement risk posed to these species by trap/pot gear, as described in Section 6.5, the impacts to protected species are expected to be slight to high moderately negative, with slight to moderate negative impacts likely for MMPA protected species of bottlenose dolphins and large whales (non-ESA listed), respectively, and slight to high moderate negative impacts likely for ESA-listed species of sea turtles and large whales.

The no action alternative would result in slightly more negative impacts to protected species than the preferred alternative because it would not institute ownership caps. As a result, the no action would not result in changes to the fishery that could equate to reduced entanglement risk to protected species (e.g., fewer vertical lines set) when compared to the preferred alternative. The no action alternative would result in similar impacts (slight to high moderate negative impacts) to protected species as the 1,600-trap alternative because neither alternative is expected to curb latent effort.

7.6.1.2 Modified Commission Area 2 Alternative

The preferred alternative is expected to result in slight negative to moderate negative impacts to protected species (ESA listed and MMPA protected species). As discussed under the no action, the lobster fishery uses pot/trap gear. Protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type.

The preferred alternative would cap most entities at 800 active traps, beginning May 1, 2023. This option would establishing a de facto owner-operator fishery for the majority of the Area 2 fishery. However, it would allow entities with permits and traps in excess of this limit to retain those permits and traps, but not own or share ownership of any additional permits or traps. As such, these entities would be limited to their current permits/trap allocations. It would do little, however, to adjust allocations to account for latent effort in the near-term. In the longer term, capping ownership requirements could prevent the reactivation of latent effort, therefore limiting long-term risk to protected species. However, given the dominance of owner/operations in Area 2 (e.g., 85% of permit holders; Section 7.2.1.2), any limitation is expected to be small. Taking into consideration these factors, a minimal amount of risk reduction for protected species could potentially be expected; however, as the preferred alternative captures and caps the Area 2 fishery in its current make up (see Section 7.2.1.2), relative to current operating conditions in the fishery, the preferred alternative is not expected to introduce new or elevated risks. Based on this, under this scenario, impacts could range from slight negative to moderate negative.

The preferred alternative is expected to result in slightly less negative impacts on protected species than either the no action or the 1,600-trap alternative. The preferred alternative would institute an ownership cap that would limit future business operations, curb latent effort, and thus may decrease the risk of entanglement, minimizing negative impacts to these species, when compared to the no action or 1,600-trap alternative. Neither the no action alternative nor the 1,600-trap alternative would address latent effort by setting a limiting ownership cap, thus maintaining the status quo level of risk to protected species.

7.6.1.3 1,600 Trap Alternative

This alternative would limit all Area 2 entities to 1,600 traps (all assumed to be active), regardless of the number of permits owned. Those entities who already have more than 1,600 traps would forfeit the difference, but would be allowed to engage in the trap transfer program to eliminate excess traps.

The 1,600-trap alternative is expected to result in slight to high moderate negative impacts on protected species (ESA listed and MMPA protected species). As discussed under the no action, the lobster fishery uses pot/trap gear. Protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type. Therefore, the 1,600-trap alternative is expected to result in some level of negative impacts to protected species. Similar to the no action alternative, instituting a 1,600-trap cap fails to institute further limits on the fishery. As discussed in Section 7.6.1.1, under a worst case scenario, this could result in latent effort activing and additional vertical lines being deploy, thus resulting in high moderate negative impacts to protected species. However, given the poor condition of the SNE stock and minimal incentives for latent effort to activate, a more status quo fishery could be expected, resulting in slight negative impacts to protected species. Taking into consideration the above, impacts to protected species are expected to be slight to high moderately negative.

The 1,600-trap alternative would result in similar slight to high moderate negative impacts to protected species as the no action alternative because neither alternative is expected curb latent effort. Therefore, under either the no action alternative or the 1,600 trap alternative, a status quo level of risk to protected species is maintained. The 1,600-trap alternative would result in the more negative impacts to protected species than the preferred alternative because the 1600-trap alternative fails to institute further limits on the fishery that could equate to reduced entanglement risk to protected species (e.g., fewer vertical lines set), while the preferred alternative has a possibility of reducing trap allocations and vertical lines and therefore, may reduce the risk of entanglement, minimizing negative impacts.

7.6.2 Area 3 Alternatives

7.6.2.1 No Action

The no action alternative is expected to result in slight to high moderate negative impacts to protected species (ESA listed and MMPA protected species). As discussed in Section 6.4.3, protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type. The risk of an interaction is associated with the quantity of gear in the water (e.g., number of vertical lines), gear soak/tow duration, and the temporal and spatial overlap of the gear and protected species. Increases in any of these factors equates to elevated interaction risk to protected species. As the lobster fishery uses pot/trap gear, and the distribution of protected species of large whales (North Atlantic right, humpback, minke, fin, sei), bottlenose dolphins, and sea turtles (leatherback, loggerhead, Kemp's ridley, green) overlaps with the lobster fishery operating in Area 2, interactions with protected species are possible and some level of negative impacts to protected species is likely.

While traps have been reduced through 5 years of scheduled trap reductions and continue to be transferred through the trap transfer program, the active trap cap and aggregate ownership cap would not be implemented. Thus, an additional check on latent effort and future trap activation through the use of the trap transfer program would not be implemented. The no action could, in a worst case scenario, result an increase in the conversion of latent traps into active traps if further, unchecked consolidation of traps in Area 3 were to take place. Unchecked consolidation may continue to result in the activation of latent effort in the offshore fishery by allowing entities to buy Area 3 trap allocation without restraint. As noted above, interactions risks with protected species are strongly associated with the amount of gear in the water, gear soak or tow time, as well as the area of overlap, either in space or time, of the gear and a protected species. If this were to take place, additional active traps would result in additional vertical

lines being deployed in the Area 3 fishery, thus resulting in an increase in interaction risks, resulting in high moderate negative impacts to protected species.

However, based on discussion presented in Sections 4.4 and 6.5.4, and the information presented in Figure 27, a conflicting picture arises with regard to trap usage in Area 3. Information presented in prior sections depicts a clear decreasing trend in the number of active vessels and traps allocated to the fishery. Assuming the continuation of this trend with limited incentives for permit holders to make changes to their fishing operations, status quo fishery conditions could be expected. As a result, fishing behavior and effort are not expected to change significantly from "status quo" conditions. Based on this, relative to status quo conditions, the location and quantity of pot/trap gear, and thus, number of vertical lines used in lobster fishery and associated management areas are also not expected to change significantly. Continuation of "status quo" fishing behavior/effort is not expected to change operating conditions. Specifically, relative to status quo operating conditions, there would be no change in area fished, and therefore, the level of overlap between pot/trap gear and protected species. The number of vertical lines in the water and the duration of time gear is set are not expected to increase under this scenario, relative to status quo operating conditions. In addition, under the no action, all lobstermen will continue to comply with ALWTRP regulations (e.g., Area 3 trap-per-trawl requirements, weak links).

Based on this, relative to current conditions, new or elevated (e.g., more gear, longer soak time) interaction risks to protected species could be expected under the worst case scenario, but would not be expected if more 'status quo' conditions prevail. Taking into consideration the above, as well as information on the status of the species and the entanglement risk posed to these species by trap/pot gear, as described in Section 6.5, the impacts to protected species are expected to be slight to high moderate negative, with slight to moderate negative impacts likely for MMPA protected species of bottlenose dolphins and large whales (non-ESA listed), respectively, and slight to high moderate negative impacts likely for ESA-listed species of sea turtles and large whales.

The no action alternative would result in more negative impacts on protected species than the preferred alternative or the Modified Commission Area 3 alternative because it would not institute trap cap reductions, ownership caps, and no traps, and thus no vertical lines may be retired from the fishery. Further, it could lead to an activation of latent effort and additional vertical lines being used by the fishery. However, the no action could result in no changes to the fishery that could equate maintaining a status quo level of risk to protected species when compared to the preferred alternative or the Modified Commission Area 3 alternative.

7.6.2.2 Adjusted Ownership Cap Alternative (preferred)

The preferred alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (7,740 traps) in Addenda XXI and XXII, with modifications to the aggregate caps from what the Commission recommended and omission of the individual permit caps, as shown in Table 5. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active. The aggregate ownership caps would remain in this alternative, but would equal five times the corresponding active trap cap.

The preferred alternative is expected to result in overall slight negative to moderate negative to protected species (ESA listed and MMPA protected species), regardless of the sub-alternative chosen. Protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and

sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type., Therefore, the preferred alternative is expected to result in some level of negative impacts to protected species. Depending on the control date sub-alternative selected (see Section 7.2.2.2 and Table 51), the implementation of the aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps. If these traps are permanently retired from the fishery, it may result in between approximately 450-600 vertical lines being retired from Area 3, depending on the control date selected (see Table 55) and explained further below. Any realized reductions in vertical lines may reduce short-term and longer-term risk to protected species by reducing the risk of entanglement. However, as provided in Section 7.2.2.2, the reduction in traps under the preferred alternative are relatively small in comparison to the number of traps allocated in Area 3 and may not be fully realized if the permit holders transfer these traps to other permit holders before the reductions are implemented. In addition, Area 3 lobstermen may choose to continue to fish the same number of trawls, each with a reduced number of traps, but with no reduction in the number of vertical lines, to maintain fishing grounds, rather than remove trawls and associated vertical lines, making it difficult to determine the precise number of vertical lines that could be removed. Taking into consideration these factors, the level of risk reduction potentially afforded to protected species under the preferred alternative is qualified as slight. Based on this, under this scenario, impacts could range from slight negative to moderate negative. The impacts of the various control dates and trap cap reduction timeframe sub-options are discussed in greater detail in the following sub-sections.

Table 54. Vertical Line Summary by Control Date Sub-Alternative*

Control Dates	2014	2017	Current (2019)
Maximum Number of Vertical Lines Retired from the Fishery	598	570	468
Number of Vertical Lines Remaining in the Fishery	5,173	5,202	5,303

*Assumptions explained in detail in the sub-alternative below

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on protected species and compare impacts between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

The preferred alternative would have less negative impacts on protected species than the no action alternative because the preferred alternative has the possibility of limiting future consolidation by removing traps and vertical lines from the fishery. Thus, the preferred alternative may decrease the risk of entanglement, minimizing negative impacts to these species, when compared to the no action alternative. Overall, the preferred alternative would the same slight to moderate negative impacts to protected species as the Modified Commission Area 3 alternative because both alternatives would result in the same number of traps and vertical lines that could be retired from the fishery.

7.6.2.2.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303

traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

As discussed above, this sub alternative could result in a maximum of approximately 12,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of approximately 600 vertical lines could be retired with these traps, as summarized in Table 56.

Table 55. Vertical Line Summary if the 2014 Control Date is applied

	Traps	Vertical Lines
Area 3 2019 Baseline	115,425	5,771
Maximum Retired due to 2014 Control Date	6,303	315
Maximum Retired due to Active Trap Cap Reductions	5,660	283
Maximum Total Retired	11,963	598
Area 3 in 2022	103,462	5,173

To determine the number of vertical lines associated with the traps in the table above, we assumed that traps would be fished in 40-trap trawls, with 2 vertical lines per trawl, consistent with how a substantial percentage of gear is fished in Area 3. It does not include adjustments for any post 2019 trap transfers or the final year (2020) of Area 3 trap reductions, as we have no way to reliably predict business decisions and resulting trap allocations. While this analysis attempts to quantify the number of vertical lines that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have the least negative impacts to protected species when compared to the 2017 control date or current permit data options, because it could result in the highest number of traps and therefore vertical lines being retired from the fishery (i.e., result in the highest number of vertical lines remaining in use in the fishery). This in turn, could provide the greatest reduction in entanglement risk to protected species when compared to the other alternatives.

7.6.2.2.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.2.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.2.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.2.2.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 7,740 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017 allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 above.

As discussed above, this sub alternative could result in a maximum of approximately 11,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of 570 vertical lines could be retired with these traps, as summarized in Table 57.

Table 56. Vertical Line Summary if the 2017 Control Date is applied

	Traps	Vertical Lines
Area 3 2019 Baseline	115,425	5,771
Maximum Retired due to 2017 Control Date	31	2
Maximum Retired due to Active Trap Cap Reductions	11,360	568
Maximum Retired	11,391	570
Area 3 in 2022	104,034	5,202

Similar assumptions were used as described in Section 7.6.2.2.1. While this analysis attempts to quantify the number of vertical that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have more negative impacts to protected species when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. As a result, relative to the 2014 control date option, the 2017 control date option does not provide as great of a reduction in entanglement risk to protected species. This alternative would have less negative impacts to protected species when compared to the current permit data option because it could result in more traps and therefore, vertical lines, being retired from the fishery. As a result, relative to the current permit data option, the 2017 control date option provides a greater reduction in entanglement risk to protected species.

7.6.2.2.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.2.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.2.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced

entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.2.2.3 Current Permit Data (as of May 1, 2019) Approach (Preferred)

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 7,740 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

As discussed above, this sub alternative could result in a maximum of approximately 9,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of 468 vertical lines could be retired with these traps, as summarized in Table 58.

Table 57. Vertical Line Summary if Current Permit Data (using 2019as a proxy) is applied

	Traps	Vertical Lines
Area 3 2019 Baseline	115,425	5,771
Maximum Retired due to using Current Permit Data	0	0
Maximum Retired due to Active Trap Cap Reductions	9,361	468
Maximum Retired	9,361	468
Area 3 in 2022	106,064	5,303

Similar assumptions were used as described in Section 7.6.2.2.1. While this analysis attempts to quantify the number of vertical that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have the most negative impacts to protected species when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery, and therefore, does not provide as great of a reduction in entanglement risk to protected species.

7.6.2.2.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.2.3.2 Three Year Allocation Cap Reduction (Preferred)

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.2.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.2.3 Modified Commission Area 3 Alternative

The Modified Commission Area 3 alternative would adopt the Area 3 active trap cap (1,548 traps) and aggregate ownership caps (9,000 traps), as recommended in Addenda XXI and XXII and shown in Table 7. The Commission adopted these addenda to ensure that no single entity exerted significant control of the fishery or markets. The individual permit caps were intended as a cap for each permit to accommodate banked allocation. They are not considered part of this alternative because the annual trap reductions would have already taken place by the time this action is complete, making banking moot. In the absence of banking, all traps would be considered active.

The Modified Commission is expected to result in slight negative to moderate negative impacts to protected species (ESA listed and MMPA protected species). Protected species of large whales (ESA listed and MMPA protected), bottlenose dolphins (MMPA protected), and sea turtles (ESA listed) are at risk of interacting with pot/trap gear, specifically via the entanglement in vertical lines associated with this gear type. Therefore, the preferred alternative is expected to result in some level of negative impacts to protected species. Depending on the control date sub-alternative selected (see Section 7.2.2.2 and Table 51), the implementation of the active trap cap and aggregate allocation caps is expected to reduce the number of lobster traps by removing between approximately 9,000 and 12,000 traps from the overall pool of Area 3 traps. If these traps are permanently retired from the fishery, it may result in between approximately 450-600 vertical lines being retired from Area 3, depending on the control date selected (see Table 55) and explained further below. Any realized reductions in vertical lines may reduce short-term and longer-term risk to protected species by reducing the risk of entanglement. However, as provided in Section 7.2.2.2, the reduction in traps under the preferred alternative are relatively small in comparison to the number of traps allocated in Area 3 and may not be fully realized if the permit holders transfer these traps to other permit holders before the reductions are implemented. In addition, Area 3 lobstermen may choose to continue to fish the same number of trawls, each with a reduced number of traps, but with no reduction in the number of vertical lines, to maintain fishing grounds, rather than remove trawls and associated vertical lines, making it difficult to determine the precise number of vertical lines that could be removed. Taking into consideration these factors, the level of risk reduction potentially afforded to protected species under the preferred alternative is qualified as slight. Based on this, under this scenario, impacts could range from slight negative to moderate negative. The impacts of the various control dates and trap cap reduction timeframe sub-options are discussed in greater detail in the following sub-sections.

The following sub-alternatives discuss the impacts of the control date reduction sub-alternatives on protected species and compare impacts between those control date sub-alternatives. The sub-alternatives remain consistent with the Addendum's allowance of capping allocations that exceed the cap at the time of the control date, but would restrict them from further increases in the future. Only one control date

sub-alternative will be chosen. Within each control date option, additional sub-alternatives are presented for the implementation timeframes of the ownership cap reductions (i.e., one, three, or five years). Only one of control date/reduction schedule combinations will be selected.

Overall, the Modified Commission Area 3 alternative would have less negative impacts on protected species than the no action alternative because the no action alternative fails to institute trap cap reductions, ownership caps, and no traps, and thus no vertical lines may be retired from the fishery. Further, it could lead to an activation of latent effort and additional vertical lines being used by the fishery. Overall, the Modified Commission Area 3 alternative could result in the same slight to moderate negative impacts to protected species as the preferred alternative because both alternatives would result in the same number of traps and vertical lines that could be retired from the fishery.

7.6.2.3.1 2014 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2014 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2014 allocations would retire 6,303 traps. We then examined these permit holders 2014 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 48 and summarized in Table 52 above.

As discussed above, this sub alternative could result in a maximum of approximately 12,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of approximately 600 vertical lines could be retired with these traps, as summarized in Table 56. To determine the number of vertical lines associated with the traps in the table above, we assumed that traps would be fished in 40-trap trawls, with 2 vertical lines per trawl, consistent with how a substantial percentage of gear is fished in Area 3. It does not include adjustments for any post-2019 trap transfers or the final year (2020) of Area 3 trap reductions, as we have no way to reliably predict business decisions and resulting trap allocations. While this analysis attempts to quantify the number of vertical lines that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the 2014 Control Date Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have the least negative impacts to protected species when compared to the 2017 control date or current permit data options, because it could result in the highest number of traps and therefore vertical lines being retired from the fishery (i.e., result in the highest number of vertical lines remaining in use in the fishery). This in turn, could provide the greatest reduction in entanglement risk to protected species when compared to the other alternatives.

7.6.2.3.1.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to

some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.3.1.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.3.1.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 5,660 traps and 283 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.2.3.2 2017 Control Date Approach

As discussed above, this sub alternative maintains 2019 allocations for the vast majority of permit holders and applies the 2017 control date to permit holders in excess of the caps. These permit holders would also be bound by the aggregate trap caps as shown in Table 5, with an ultimate cap of 9,000 traps. For the 2 permit holders that exceed the aggregate cap, reverting back to their 2017allocations would retire approximately 30 traps. We then examined these permit holders' 2017 permits and trap allocation, as well as all other permits holders 2019 permit and trap allocations to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 49 and summarized in Table 53 above.

As discussed above, this sub alternative could result in a maximum of approximately 11,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of 570 vertical lines could be retired with these traps, as summarized in Table 57. Similar assumptions were used as described in Section 7.6.2.2.1. While this analysis attempts to quantify the number of vertical that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the

trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the 2017 Control Date Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have more negative impacts to protected species when compared to the 2014 control date option because it could result in fewer traps being retired from the fishery. As a result, relative to the 2014 control date option, the 2017 control date option does not provide as great of a reduction in entanglement risk to protected species. This alternative would have less negative impacts to protected species when compared to the current permit data option because it could result in more traps and therefore, vertical lines, being retired from the fishery. As a result, relative to the current permit data option, the 2017 control date option provides a greater reduction in entanglement risk to protected species.

7.6.2.3.2.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.3.2.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.3.2.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 11,000 traps and 568 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.2.3.3 Current Permit Data (as of May 1, 2019) Approach

As discussed above, this sub alternative maintains 2019 allocations for all permit holders. Any permit holder under the aggregate cap would also be bound by the aggregate trap caps as shown in Table 7, with an ultimate cap of 9,000 traps. Thus, no traps would be retired as a result of reverting back to historic permits and trap allocations. We then examined all permit holders' 2019 permits and trap allocation to determine the active trap cap reductions on a permit by permit basis. The maximum number of traps that could be retired and permits affected, by year, including those affected and not affected by the control date, are fully presented in Table 50 and summarized in Table 54 above.

As discussed above, this sub alternative could result in a maximum of approximately 9,000 traps being retired from the fishery. Accordingly, we estimated that a maximum of 468 vertical lines could be retired with these traps, as summarized in Table 58. Similar assumptions were used as described in Section 7.6.2.2.1. While this analysis attempts to quantify the number of vertical that may be retired, the number of traps ultimately retired from the fishery is uncertain, given that permit holders may participate in the trap transfer program. The three reduction timeframe sub-alternatives all achieve the same overall reduction in the number of traps and only differ by how quickly those reductions are implemented.

As provided in Section 7.6.2.2, the current permit data Alternative, and its sub-options, are expected to have slight negative to moderate negative impacts to protected species. This alternative would have the most negative impacts to protected species when compared to the 2014 or 2017 control date options because it could result in fewer traps being retired from the fishery, and therefore, does not provide as great of a reduction in entanglement risk to protected species.

7.6.2.3.3.1 One Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves all reductions in one year. This would result in slightly less negative impacts on protected species as the other sub-alternatives, as the reductions would take place as quickly as possible. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines within a year, relative to the other sub-options, the potential reduction in entanglement risk is realized sooner under this sub-option. Permit holders would have only one year to redistribute allocation through the trap transfer program to other permits or sell it to other permit holders before losing it completely when the reduction takes effect. Consequently, this could result in more realized trap reductions in the fishery.

7.6.2.3.3.2 Three Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves the scheduled reduction over three years, which is slightly accelerated from the Commission's recommended five-year timeframe. The three-year timeframe alternative would result in slightly more negative impacts to protected species than the single year reduction timeframe, because it will take longer to achieve the total reduction. The three-year timeframe alternative would result in slightly less negative impacts to protected species than the five-year timeframe alternative, as the total reductions would be achieved sooner. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines in three years, relative to the other sub-options, the potential reduction in entanglement risk is realized not as quickly as the one year sub-option, but sooner than the five year sub-option.

7.6.2.3.3.3 Five Year Allocation Cap Reduction

The three reduction timeframes all achieve the same overall reduction, removing approximately 9,000 traps and 468 vertical lines from the fishery. This sub-alternative achieves the reduction as recommended by the Commission, over the course of five years. This would result in slightly more negative impacts to protected species compared to the other sub-alternatives, as the reductions would take place over the longest period of time and affording the most time to redistribute or sell allocation in advance of the active trap cap reductions. In general, the removal of vertical lines equates to some level of reduced entanglement risk to protected species. As this sub-option will result in the removal of lines over the longest timeframe, relative to the other sub-options, the potential reduction in entanglement risk takes the longest to be realized under this sub-option.

7.6.3 Reporting

7.6.3.1 No Action

The no action alternative is expected to result in no direct impacts on protected species compared to current fishery conditions, but slight negative indirect impacts. Maintaining no harvester reporting requirement for the Federal lobster fishery does not alter existing regulations for vertical lines or ground lines used in trap/pot fisheries. Further, because there are no data that suggest that not approving mandatory harvester reporting will have an effect on where lobsters are caught, this measure will not influence or provide any incentive for vessels to change fishing behavior, effort, or area fished. Therefore, this measure will not change or influence the location or quantity of traps/vertical lines used in this fishery. Considering these factors, this measure will not directly influence fishing behavior or effort and therefore, can be considered to be a measure that is more procedural or management based. Based on this, this measure is not expected to directly impact any protected species.

Some slight negative indirect impacts to protected species could be expected. Currently, there is a lack of data on location fished, number of trawls/vertical lines set, depth, soak time, and other parameters to help inform lobster fishing effort and its overlap with and thus, interaction risks to protected species. Without this data, information needed to make necessary and effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks, and thus reduce the level of incidental injury and mortality of protected species in lobster gear is not available. Continuation of the status quo alternative will perpetuate this lack of data on the lobster fishery and therefore, will continue to limit the ability to effectively evaluate the level of entanglement risk posed by vertical lines associated with the lobster fishery to protected species, such as large whales. Taking into consideration the above, as the lack of additional information compromises our ability to successfully mitigate interaction risks to protected species, and therefore, compromises our ability to implement effective management that reduces the level of injury and mortality to these species in lobster gear, the no action is expected to result in slight negative indirect impacts to protected species.

Compared to establishing mandatory harvester reporting, the no action is expected to have the same direct impacts (i.e., no impacts) on protected resources, but more negative indirect impacts, due to the lack of data collected on lobster fishing effort needed to inform effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks, and thus reduce the level of incidental injury and mortality to protected species in lobster gear.

7.6.3.2 Electronic Trip Level Reporting

This preferred alternative, electronic trip-level harvester reporting for all Federal lobster permit holders including additional data fields, is expected to result in no direct impacts on protected species compared

to current fishery conditions, but slight positive indirect impacts. Mandatory harvester reporting for the Federal lobster fishery does not alter existing regulations for vertical lines or ground lines used in trap/pot fisheries. Further, because there are no data that suggest that not approving mandatory harvester reporting will have an effect on where lobsters are caught, this measure will not influence or provide any incentive for vessels to change fishing behavior, effort, or area fished. Therefore, this measure will not change or influence the location or quantity of traps/vertical lines used in this fishery. Considering these factors, this measure will not directly influence fishing behavior or effort and therefore, can be considered to be a measure that is more procedural or management based. Based on this, this measure is not expected to directly impact any protected species.

The preferred alternative is expected to result in slight positive indirect impacts to protected species. As explained under the no action alternative, currently, there is a lack of data on location fished, number of trawls/vertical lines set, depth, soak time, and other parameters to help inform lobster fishing effort and its overlap with and thus, interaction risks to protected species. Collecting this needed information will aid in the development of future effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks, and thus reduce the level of incidental injury and mortality of protected species in lobster gear is not available. This data will allow us to effectively evaluate the level of entanglement risk posed by vertical lines associated with the lobster fishery to protected species, such as large whales. Taking into consideration the above, slight positive indirect impacts are expected from the preferred reporting alternative, as the data will aid our ability to implement effective management measures that reduce the level of serious injury and mortality to these species in lobster gear.

Compared to the no action alternative, the preferred alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts to protected species because more comprehensive information on the lobster fishing effort needed to inform effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks would be collected, and thus reduce the level of incidental injury and mortality to protected species in lobster gear. Compared to the paper reporting alternative, the preferred alternative is expected to have the same direct impacts (no impact) and slightly more positive indirect impacts because the data generated from electronic reporting are expected to be more readily available and comprehensive. Data quality is expected to be higher, as quality control functions would be permissible at a user level. Less time needed to address data inconsistencies or errors will speed the availability of information for scientific and management purposes.

7.6.3.3 Trip Level Reporting with Paper

This paper-reporting alternative with additional data fields is expected to result in no direct on protected species compared to current fishery conditions, but slight positive indirect impacts. Mandatory harvester reporting for the Federal lobster fishery does not alter existing regulations for vertical lines or ground lines used in trap/pot fisheries. Further, because there are no data that suggest that not approving mandatory harvester reporting will have an effect on where lobsters are caught, this measure will not influence or provide any incentive for vessels to change fishing behavior, effort, or area fished. Therefore, this measure will not change or influence the presence, quantity, and degree of traps used in this fishery. Considering these factors, this measure will not directly influence fishing behavior or effort and therefore, can be considered to be a measure that is more procedural or management based. Based on this, this measure is not expected to directly impact any protected species.

The paper-reporting alternative is expected to result in slight positive indirect impacts to protected species. Currently, there is a lack of data on location fished, number of trawls/vertical lines set, depth, soak time, and other parameters to help inform lobster fishing effort and its overlap with and thus, interaction risks to protected species. Collecting this needed information will aid in the development of

future effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks, and thus reduce the level of incidental injury and mortality of protected species in lobster gear is not available. This data will allow us to effectively evaluate the level of entanglement risk posed by vertical lines associated with the lobster fishery to protected species, such as large whales. Taking into consideration the above, slight positive indirect impacts are expected from the paper reporting alternative, as the data will aid our ability to implement effective management measures that reduce the level of serious injury and mortality to these species in lobster gear.

Compared to the no action alternative, the paper reporting alternative is expected to have the same direct impacts (no impact) and more positive indirect impacts to protected species because more comprehensive information on the lobster fishing effort needed to inform effective management (e.g., changes to the ALWTRP) decisions to reduce entanglement risks would be collected, and thus reduce the level of incidental injury and mortality to protected species in lobster gear. Compared to the preferred alternative, the paper-reporting alternative is expected to have the same direct impacts (no impact) and slightly more negative indirect impacts because the data generated from paper reporting would not be available as quickly or comprehensively as it would through an electronic submission. Data quality will likely be reduced in the shorter term because paper submissions would not allow for the quality control functions of the electronic systems at the user level. Without the electronic quality control functions, harvesters could submit data outside the parameters that are admissible, requiring administrative time to circle back and follow up with the harvester to ground truth the information. More time to address data inconsistencies or errors, along with the additional time needed to process and manually enter the paper data, will delay the availability of the information for scientific and management purposes.

7.7 Cumulative Impacts Analysis

7.7.1 Introduction

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ; 40 CFR part 1508.7) and NOAA policy and procedures for NEPA, found in NOAA Administrative Order 216-6A (Companion Manual, January 13, 2017). The purpose of the CEA is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective. Rather, the intent is to focus on those effects that are truly meaningful. The following remarks address the significance of the expected cumulative impacts as they relate to the federally managed American lobster fishery.

A cumulative effects assessment ideally makes effect determinations based on the combination of: 1) Impacts from past, present, and reasonably foreseeable future actions; 2) the baseline conditions of the VECs (the combined effects from past, present, and reasonably foreseeable future actions plus the present condition of the VEC); and 3) impacts of the alternatives under consideration for this action.

7.7.1.1 Consideration of the Valued Ecosystem Components (VEC)

The valued ecosystem components for the lobster fishery are generally the "place" where the impacts of management actions occur, and are identified as noted in Section 6.0:

1. Human Communities
2. Target species (American lobster);
3. Other affected species (bycatch and bait);
4. Physical environment; and
5. Protected species.

The CEA identifies and characterize the impacts on the VECs by the alternatives under consideration when analyzed in the context of other past, present, and reasonably foreseeable future actions.

7.7.1.2 Geographic Boundaries

The analysis of impacts focuses on actions related to the commercial harvest of American lobsters. The Western Atlantic Ocean is the core geographic scope for each of the VECs. The core geographic scope for the managed species is the management unit described in Figure 1. For non-target species, that range may be expanded and would depend on the range of each species in the Western Atlantic Ocean. For habitat, the core geographic scope is focused on lobster EFH within the EEZ but includes all habitat utilized by lobster, and non-target species in the Western Atlantic Ocean. The core geographic scope for protected species is their range in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities in coastal states from Maine south to Virginia directly involved in the harvest of lobster (Section 6.1).

7.7.1.3 Temporal Boundaries

Overall, while the effects of the historical lobster fishery are important and considered in the analysis, the temporal scope of past and present actions for lobster, other affected species, the physical environment, and human communities is primarily focused on actions that occurred after FMP implementation under the Atlantic Coastal Act in 1999. An assessment using this timeframe demonstrates the changes to resources and the human environment that have resulted through management under the Commission process and through the Federal prosecution of the fishery. For protected species, the scope of past and present actions is focused on the 1980s and 1990s (when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ) through the present.

The temporal scope of future actions for all VECs extends about five years (2027) into the future beyond the analyzed time frame of the alternatives described in this document. The dynamic nature of resource management for these species and lack of information on projects that may occur in the future make it difficult to predict impacts beyond this timeframe with any certainty. The impacts discussed in Section 7.7.3 are focused on the cumulative effects of the proposed action (i.e, the suite of preferred alternatives) in combination with the relevant past, present, and reasonably foreseeable future actions over these time scales.

7.7.2 Relevant Actions Other Than Those Proposed in this Document

The impacts of the alternatives considered in this document are described in Section 7. This section summarizes the past, present, and reasonably foreseeable future actions and effects that are relevant for this cumulative effects assessment. The impacts of these actions are described qualitatively as the actual impacts are too complex to be quantified in a meaningful way. Some past actions are still relevant to the present and/or future actions.

7.7.2.1 Fishery Management Actions

Past, present, and reasonably foreseeable future actions for lobster management include Federal actions taken to complement Amendment 3 to the Interstate Fishery Management Plan for American Lobster in 1999, and its 26 addenda. Key Federal actions are described below.

In addition to lobster actions, many other FMPs and associated fishery management actions have impacted these VECs over the temporal scale described in section 8.1. These include FMPs managed by the NEFMC. Actions associated with other FMPs and omnibus amendments have included measures to regulate fishing for other species, measures to protect habitat, and fishery monitoring and other reporting requirements.

7.7.2.1.1 American Lobster Actions

Past and Present Actions

American Lobster Area 3, 4, 5 Trap Fishery Eligibility Program (Final Rule 2003): Implemented measures to cap and control trap fishing effort in Areas 3, 4, and 5 by qualifying vessels using specified criteria and instituted a trap reduction schedule for Area 3.

Broodstock Protection Measures (Final Rule 2006): This action aimed at increasing broodstock production throughout the management range, including:

- An increase in the minimum legal gauge size in Areas 2, 3, 4, 5, and the Outer Cape;
- an increase in the size of escape vents on lobster traps in LCMAs 2, 3, 4, 5, and the Outer Cape;
- implementation of a maximum legal gauge size in LCMA 4 and 5;
- mandatory V-notch requirement of female lobsters carrying eggs in LCMA 1 and in LCMA 3 above the 42°30′ North latitude line; and
- a zero tolerance definition of V-notched female lobsters in LCMA 1.

Broodstock Protection and Effort Controls (Final Rule 2007): This action implemented regulatory measures implement further minimum carapace length (gauge) increases, an escape vent size increase, and trap reductions in the offshore American lobster fishery.

Mandatory Dealer Reporting and other Broodstock Protections (Final Rule 2009): This action implemented a mandatory Federal lobster dealer electronic reporting requirement, changes to the maximum carapace length regulations for several lobster conservation management areas, and a modification of the v-notch definition for protection of egg-bearing female American lobsters in certain areas.

American Lobster Area 1 Limited Entry Program (Final Rule 2012): Capped the number of federal Area 1 lobster trap permits at recent levels to prevent migration of trap effort into the Area.

Transferable Trap Program for Area 2, 3, and the Outer Cape and the Area 2 and Outer Cape Trap Fishery Eligibility Program (Final Rule 2014): This action approved:

- a program allowing Area 2, 3, and Outer Cape fishermen to transfer all or part of a trap allocation from one vessel to another and
- capped and controlled trap fishing effort in Area 2 and the Outer Cape by qualifying vessels using specified criteria.

Trap Reductions and Brood Stock Protection Measures (Final Rule 2015): This action approved trap reductions LCMAs 2 and 3, and a variety of broodstock protection measures for LCMAs 3, 4, and 5 to achieve a 10-percent reduction in exploitation.

Area 4 Closed Season Modification (Final Rule 2015): This action modified the seasonal closure for Area 4 based on Commission evaluation that the previously approved closed season did not achieve conservation goals.

Reasonably Foreseeable Future Actions

Gulf of Maine Lobster Management Standardization: The Commission is considering increasing the resiliency of the GOM/GBK stock by considering the standardization of management measures across Areas. It is intended to be a proactive management action in response to signs of reduced settlement and the combination of the GOM and GBK stocks following the 2015 Stock Assessment. The goal of this addendum is to add an additional biological buffer to the stock through the protection of spawning stock biomass across Areas. Future impacts are uncertain.

Impact Summary

These actions would likely have had positive impacts to target species because they support sustainable management. Actions affecting Area 1 would help to maintain or possibly improve stock status, while actions affecting all other areas would have positive impacts on the SNE stock, due to overlap with the SNE stock area. These actions would likely have had positive impacts to other affected species, slight negative impacts to the physical environment and protected species, and short term negative impacts to human communities, with the prospect for longer term positive impacts.

7.7.2.1.2 Other Affected Species Actions

Atlantic Deep-Sea Red Crab: The fishery management plan (FMP) was implemented in 2002 and was originally managed under a target TAC and DAS system. The FMP also established limited entry for a small number of vessels. Amendment 3 to the FMP removed the trip limit restriction, and replaced the target TAC and DAS allocation with a catch limit structure consistent with the annual catch limit (ACL) and accountability measure (AM) requirements of the Magnuson-Stevens Act. Under Amendment 3, the 2011-2013 red crab specifications were set equal to the long-term average landings of the directed red crab fishery (1,775 mt). These specifications were continued for fishing years 2014-2016 and 2017-2019. The 2020-2023 specifications action expanded the specifications cycle from 3 to 4 years and includes a 12.7-percent quota increase to 2,000 mt.

Jonah crab: The Commission approved an Interstate Fishery Management Plan for Jonah Crab in August 2015. The goal of the plan is, "to promote conservation, reduce the possibility of recruitment failure, and allow the full utilization of the resource by the industry." In general, the plan is designed to cap fishing effort at 2015 levels. Shortly after approving the plan, the Commission initiated and approved Addenda I and II to the Plan, which made small adjustments to the recommended management measures. The Commission formally recommended that the Secretary of Commerce implement complementary Federal measures to implement the Jonah Crab Plan on September 8, 2015, and its addenda on February 8, 2017. NMFS issued a final rule on November 13, 2019 (84 FR 61569) that implemented a minimum size requirements, protections for egg-bearing females, incidental trip limits, dealer permitting and reporting requirements, and recreational fishery limits. The rule also limited harvest of Jonah crabs using trap gear to those that already hold a lobster permit.

Atlantic Herring: Herring management measures were developed in two related, but separate FMPs in 1999 – one by the Council and one by the Commission. The herring resource is assessed as one stock, with inshore and offshore components. Amendment 4 to the Atlantic Herring FMP, in 2011, established provisions for ACLs, set an interim ABC control rule, established provisions for sub-ACLs, and implemented AMs. Framework 2 to the Atlantic Herring FMP was implemented by NMFS concurrently with the 2013-2015 Atlantic herring fishery specifications on September 30, 2013. Framework 2 authorized the Council to split sub-ACLs in all herring management areas seasonally and established a general policy for authorizing annual carryover of unused sub-ACL (up to 10%) under specific conditions. In addition to implementing harvest specifications, the 2013-2015 specifications established a new AM to limit catch when 95% of the herring ACL is projected to be reached and lowered the trigger (from 95% to 92% of the sub-ACL) to limit catch in each of the herring management areas. Amendment 5 implemented measures for catch reporting, vessel requirements for catch sampling by observers, and slippage restrictions to ensure catch is available for sampling by an observer. Framework 4 to the Atlantic Herring FMP became effective in 2016 and built on measures implemented in Amendment 5 to the Atlantic Herring FMP. The action clarified slippage requirements, required slippage to be reported via VMS, and established slippage consequences. Framework 8 specifications (2021-2023) has set specifications for the last two years and projects specifications for 2023, in response to the 2020 Atlantic

herring stock assessment and concluded the stock is overfished. The action set herring harvest limits, as well as river herring/shad catch caps, for the herring fishery. Because the stock is overfished, the New England Council is currently developing a rebuilding plan. Thus, these actions are expected to have a positive impact on the herring resource by supporting sustainability.

The Commission manages the Atlantic herring fishery in State waters. The Commission adopted Amendment 3 to the Interstate Fishery Management Plan for Atlantic Herring in February 2016 which set the overarching fishery management measures. It included specification, spawning closures and procedures for closures and reopenings, defined management boundaries, and updated the days out program. Addenda I and II made additional revisions to the days out program and spawning closures.

Skates: Amendment 3 to the Skate FMP implemented an ACL and AMs for the skate complex and was designed to reduce skate discards and landings sufficiently to rebuild stocks of thorny and smooth skates, and to prevent other skates from becoming overfished. Skate Framework Adjustment 1 (May 2011) reduced skate possession limits and adjusted other measures to lengthen the fishing season for the directed skate wing fishery. Skate Framework 2 (September 2014) reduced skate specifications and revised the skate dealer and VTR codes to improve species-specific reporting. Skate Framework 3 (August 2016) reduced skate specifications and created a seasonal quota allocation for the wing fishery. Skate Framework 4 (March 2018) modified skate bait effort controls. Skate Framework 5 (September 2018) set specifications and established a possession limit for barndoor skate and an exemption program for vessels fishing solely in the Northwest Atlantic Fisheries Organization (NAFO) Regulated Area. Skate Framework 6 (February 2019) extended the skate bait and wing fisheries by modifying the uncertainty buffer to reduce the likelihood of the incidental possession limit being triggered, which restricts fishing operations.

Acadian Redfish: Acadian redfish is managed by the New England Fishery Management Council under the Northeast Multispecies Fishery Management Plan. Management actions since 2010 have set ACLs based upon the best scientific information available. Some actions have revised biological reference points, revised accountability measures, modified rebuilding programs, established new closed areas to protecting spawning aggregations of fish, modify restrictions for the incidental catch of groundfish in other fisheries, revised recreational catch limits, adjusted carryover of uncaught fish from one year to the next, and adjusted selective gear requirements.

Atlantic Menhaden: Atlantic menhaden is managed solely by the states through the Atlantic States Marine Fisheries Commission by the Atlantic Menhaden Board. The fishery is currently managed under Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden. Approved in November 2017, the Amendment maintains the management program's single-species biological reference points until the review and adoption of menhaden-specific ecological reference points as part of the 2019 benchmark stock assessment process. Amendment 3 also changes fishery allocations in order to strike an improved balance between gear types and jurisdictions. This measure provides fishing opportunities to states which currently have little quota while still recognizing historic landings in the fishery.

Standardized Bycatch Reporting Methodology: The Standard Bycatch Reporting Methodology Amendment was implemented in 2007 and revised in 2015. The amendment specified methods and processes to monitor bycatch in Greater Atlantic Region fisheries.

Impact Summary

Together, these actions would likely have positive impacts for other affected species because they aim to directly manage those fisheries in a sustainable way either by maintaining or improving stock status.

These action would likely have no direct impacts to target species, slight negative impacts to the physical environment and protected species, and positive impacts for human communities.

7.7.2.1.3 Physical Environment

Past and Present Actions

Mid-Atlantic Council Deep Sea Coral Amendment (Final Rule 2018): This action implemented management measures in the Mid-Atlantic to protect deep-sea corals from the effects of commercial fishing gear. This action was intended to protect deep-sea coral and deep-sea coral habitat while promoting the sustainable utilization and conservation of several different marine resources managed under the authority of the Mid-Atlantic Fishery Management Council.

New England Council Habitat Omnibus Amendment 2 (Final Rule 2018): This action implemented revised essential fish habitat and habitat area of particular concern designations, revised or created habitat management areas, including gear restrictions, to protect vulnerable habitat from fishing gear impacts, and established dedicated habitat research areas in waters off New England.

New England Council Omnibus Coral Amendment (Final Rule 2021): This action implements protections to deep-sea corals from the impacts of commercial fishing gear on Georges Bank and in the Gulf of Maine. These management measures are intended to reduce, to the extent practicable, impacts of fishing gear on deep-sea corals in New England while balancing their costs to commercial fisheries.

Reasonably Foreseeable Future Actions

Northeast Canyons and Seamounts Marine National Monument (2016): President Obama designated the Northeast Canyons and Seamounts Marine National Monument on September 15, 2016. The Monument includes two distinct areas, one encompassing canyons (Oceanographer, Gilbert, Lydonia, and other minor canyons) and the other covering four seamounts (Bear, Physalia, Retriever, and Mytilus). Fishing activity is prohibited within the Northeast Canyons and Seamounts National Marine Monument, resulting from a 2021 Executive Order (86 FR 57349, October 15, 2021). NMFS has not yet implemented management measures, making the impacts of this designation are uncertain.

Impact Summary

Together, these actions have had slight positive impacts to the physical environment because they have aimed at improving quality or quantity of habitat through targeted fishery closures protecting habitat that are essential for fish and corals. As a result, these actions would likely have had slight positive impacts to target species, other affected species, uncertain for protected species given that shifts in effort were expected, and short term negative impacts to human communities due to area closures, with the prospect for longer term positive impacts through an increase in fish abundance and availability to harvesters.

7.7.2.1.4 Protected Resources Actions

Past and Present Actions

Fishery Biological Opinion: Pursuant to section 7 of the ESA, NMFS issued a Biological Opinion on May 27, 2021, that considered the effects of the NMFS' authorization of 10 FMPs, NMFS' North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2, on ESA-listed species and designated critical habitat. The Lobster FMP was of the 10 FMPs considered in the Opinion.

The 2021 Opinion determined that NMFS' authorization of 10 FMPs, NMFS' North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus

Essential Fish Habitat Amendment: (1) May adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right, fin, sei, or sperm whales; the Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, leatherback, Kemp's ridley, or North Atlantic DPS of green sea turtles; any of the five DPSs of Atlantic sturgeon; Gulf of Maine DPS Atlantic salmon; or giant manta rays; and, (2) is not likely to adversely affect any designated critical habitat for North Atlantic right whales, the Northwest Atlantic Ocean DPS of loggerhead sea turtles, U.S. DPS of smalltooth sawfish, Johnson's seagrass, or elkhorn and staghorn corals. An Incidental Take Statement (ITS) was issued in the Opinion. The ITS includes reasonable and prudent measures and their implementing terms and conditions, which NMFS determined are necessary or appropriate to minimize impacts of the incidental take in the fisheries assessed in this Opinion.

Past ALWTRP Actions: In response to the continued serious injury and mortality of large whales from entanglement in vertical lines (or buoy lines) of commercial fishing gear, NMFS implemented the ALWTRP in 1997 to reduce the risk of vertical line entanglements in areas and times where abundance of large whales and high trap/pot gear density overlap. Since that time, we have made modifications to gear requirements (including requiring sinking groundline), time/area closures to protect aggregations of North Atlantic right whales. Most recently, we issued a rule (86 FR 51970; September 17, 2021) amending the ALWTRP regulations to reduce the incidental mortality and serious injury to North Atlantic right, fin, and humpback whales in Northeast commercial lobster and Jonah crab trap/pot fisheries (known as Phase 1). Specifically, the rule modifies the Plan by: Increasing the minimum number of traps per trawl based on area fished and distance fished from shore in the Northeast Region; modifying existing restricted areas from seasonal fishing closures to seasonal closures to fishing with persistent buoy lines; expanding the geographic extent of the Massachusetts Restricted Area to include Massachusetts state waters north to the New Hampshire border; establishing two new restricted areas that are seasonally closed to fishing for lobster or Jonah crab with persistent buoy lines; requiring modified buoy lines to incorporate rope engineered to break at no more than 1,700 pounds or weak insertion configurations that break at no more than 1,700 pounds; and requiring additional marks on buoy lines to differentiate vertical buoy lines by principal port state, including unique marks for Federal waters, and expanding requirements into areas previously exempt from gear marking.

Reasonably Foreseeable Future Actions

Large Whale Take Reduction Team Efforts (Phase 2: U.S. East Coast gillnet, Atlantic mixed species trap/pot, and Mid-Atlantic lobster and Jonah crab trap/pot fisheries): NMFS has begun a process that will amend the ALWTRP to reduce the risk of mortalities and serious injuries of North Atlantic right, fin, and humpback whales in U.S. East Coast gillnet, Atlantic mixed species trap/pot, and Mid-Atlantic lobster and Jonah crab trap/pot fisheries (known as Phase 2). On August 11, 2021, NMFS issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) to analyze the impacts to the environment of alternatives to amend the Plan (86 FR 43996). The NOI also informed the public of upcoming scoping meetings to solicit public input. ALWTRP Phase 2 planning efforts are still ongoing.

Impact Summary

Together, these actions likely have had positive impacts for protected species because they directly aim at reducing or eliminating threats (i.e., vertical lines and other risk factors) to protected species, in particular large whales. Ancillary positive impacts have likely resulted to other protected species, like sea turtles. These actions likely had no impacts to target species and other affected species, and the physical environment, and negative impacts to human communities due to revisions to gear requirements.

7.7.2.2 Non-fishing Impacts

In addition to the direct effects on the environment from fishing, the cumulative effects (from past, present, and reasonably foreseeable future actions) to the physical and biological dimensions of the environment may also come from non-fishing impacts, as described below. These activities pose a risk to the VECs in the long run.

7.7.2.2.1 Other Human Activities

Non-fishing activities that occur in the marine nearshore and offshore environments and connected watersheds can cause the loss or degradation of habitat and/or affect the fish and protected species that utilize those areas. The impacts of most nearshore, human-induced, non-fishing activities tend to be localized in the areas where they occur, although effects on species could be felt throughout their populations since many marine organisms are highly mobile. For offshore projects, some impacts may be localized while others may have regional influence, especially for larger projects. The following discussion of impacts is based on past assessments of activities and assumes these activities will continue as projects are proposed.

Examples of non-fishing activities include point source and non-point source pollution, shipping, dredging/deepening, wind energy development, oil and gas development, construction, and other activities. Specific examples include at-sea disposal areas, oil and mineral resource exploration, aquaculture, construction of offshore wind farms, and bulk transportation of petrochemicals. Episodic storm events and the restoration activities that follow can also cause impacts. The impacts from these activities primarily stem from habitat loss due to human interaction and alteration or natural disturbances. These activities are widespread and can have localized impacts on habitat related to accretion of sediments, pollutants, habitat conversion, and shifting currents and thermoclines. For protected species, primary concerns associated with non-fishing activities include vessel strikes, dredge interactions (especially for sea turtles and sturgeon), and underwater noise. These activities have both direct and indirect impacts on protected species. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and as such may indirectly constrain the productivity of managed species, non-target species, and protected species. Decreased habitat suitability tends to reduce the tolerance of these VECs to the impacts of fishing effort. Non-fishing activities can cause target, non-target, and protected species to shift their distributions away from preferred areas, and may also lead to decreased reproductive ability and success (from current changes, spawning disruptions, and behavior changes), disrupted or modified food web interactions, and increased disease. While localized impacts may be more severe, the overall impact on the affected species and their habitats on a population level is unknown, but likely to have impacts that mostly range from no impact to slight negative, depending on the species and activity.

Non-fishing activities permitted by other Federal agencies (e.g. beach nourishment, offshore wind facilities) require examinations of potential impacts on the VECs. The MSA imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH (50 CFR 600.930). NMFS and the eight regional fishery management councils engage in this review process by making comments and recommendations on federal or state actions that may affect habitat for their managed species. Agencies need to respond to, but do not necessarily need to adopt these recommendations. Habitat conservation measures serve to potentially minimize the extent and magnitude of indirect negative impacts federally-permitted activities could have on resources under NMFS' jurisdiction. In addition to guidelines mandated by the MSA, NMFS evaluates non-fishing effects during the review processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authorities. Non-fishing

activities must also meet the mandates under the ESA, specifically Section 7(a)(2)[35], which ensures that agency actions do not jeopardize the continued existence of endangered species and their critical habitat.

In recent years, offshore wind energy and oil and gas exploration have become more relevant activities in the Greater Atlantic region. They are expected to impact all VECs, as described below.

7.7.2.2.2 Impacts of offshore wind energy development on Biological Resources (Target species, Non-target species, Protected Species) and the Physical Environment

Construction activities may have both direct and indirect impacts on marine resources, ranging from temporary changes in distribution to injury and mortality. Impacts could occur from changes to habitat in the areas of wind turbines and cable corridors and increased vessel traffic to and from these areas. Species that reside in affected wind farms year round may experience different impacts than species that seasonally reside in or migrate through these areas. Species that typically reside in areas where wind turbines are installed may return to the area and adapt to habitat changes after construction is complete. Inter-array and electricity export cables will generate electromagnetic fields, which can affect patterns of movement, spawning, and recruitment success for various species. Effects will depend on cable type, transmission capacity, burial depth, and proximity to other cables. Substantial structural changes in habitats associated with cables are not expected unless cables are left unburied (see below). However, the cable burial process may alter sediment composition along the corridor, thereby affecting infauna and emergent biota. Taormina et al. (2018) provide a recent review of various cable impacts, and Hutchinson et al. (2020) and Taormina et al. (2020) examine the effects of electromagnetic fields in particular.

The full build out of offshore wind farms will result in broad habitat alteration. The wind turbines will alter hydrodynamics of the area, which may affect primary productivity and physically change the distribution of prey and larvae. It is not clear how these changes will affect the reproductive success of marine resources. Scour and sedimentation could have negative effects on egg masses that attach to the bottom. Benthic habitat will be altered due to the placement of scour protection at wind turbine foundations, and over cables that are not buried to target depth in the sediment, converting soft substrates into hard substrates. This could alter species composition and predator/prey relationships by increasing favorable habitat for some species and decreasing habitat for others. The placement of wind turbines will also establish new vertical structure in the water column, which could serve as reefs for bottom species, fish aggregating devices for pelagic species, and substrate for the colonization of other species, e.g. mussels. Various authors have studied these types of effects (e.g. Bergström et al. 2013, Dannheim et al. 2019, Degraer et al. 2019, Langhamer 2012, Methratta and Dardick 2019, Stenberg et al. 2015).

Elevated levels of sound produced during site assessment activities, construction, and operation of offshore wind facilities will impact the soundscape[36]. Temporary, acute, noise impacts from construction activity could impact reproductive behavior and migration patterns; the long-term impact of operational noise from turbines may also affect behavior of fish and prey species, through both vibrations in the immediate area surrounding them in the water column, and through the foundation into the substrate. Depending on the sound frequency and source level, noise impacts to species may be direct or indirect (Finneran 2015; Finneran 2016; Nowacek et al. 2007; NRC 2000; NRC 2003; NRC 2005; Madsen et al. 2006; Piniak 2012; Popper et al. 2014; Richardson et al. 1995; Thomsen et al. 2006). Exposure to underwater noise can directly affect species via behavioral modification (avoidance, startle, spawning) or

[35] "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat."

36 See NMFS Ocean Noise Strategy Roadmap

injury (sound exposure resulting in internal damage to hearing structures or internal organs) (Bailey et al. 2010; Bailey et al. 2014;Bergström et al. 2014; Ellison et al. 2011; Ellison et al. 2018; Forney et al. 2017; Madsen et al. 2006; Nowacek et al. 2007; NRC 2003; NRC 2005; Richardson et al. 1995; Romano et al. 2004; Slabbekoorn et al. 2010; Thomsen et al. 2006; Wright et al. 2007). Indirect effects are likely to result from changes to the acoustic environment of the species, which may affect the completion of essential life functions (e.g., migrating, breeding, communicating, resting, foraging)[37] (Forney et al. 2017; Richardson et al. 1995; Slabbekoorn et al. 2010;Thomsen et al. 2006).

Wind farm survey and construction activities and turbine/cable placement will substantially affect NMFS scientific research surveys, including stock assessment surveys for fisheries and protected species[38] and ecological monitoring surveys. Disruption of such scientific surveys could increase scientific uncertainty in survey results and may significantly affect NMFS' ability to monitor the health, status, and behavior of marine resources and protected species and their habitat use within this region. Based on existing regional Fishery Management Councils' acceptable biological catch control rule processes and risk policies (e.g., 50 CFR §§ 648.20 and 21), increased assessment uncertainty could result in lower commercial quotas and recreational harvest limits that may reduce the likelihood of overharvesting and mitigate associated biological impacts on fish stocks. However, this would also result in lower associated fishing revenue and reduced recreational fishing opportunities, which could result in indirect negative impacts on fishing communities.

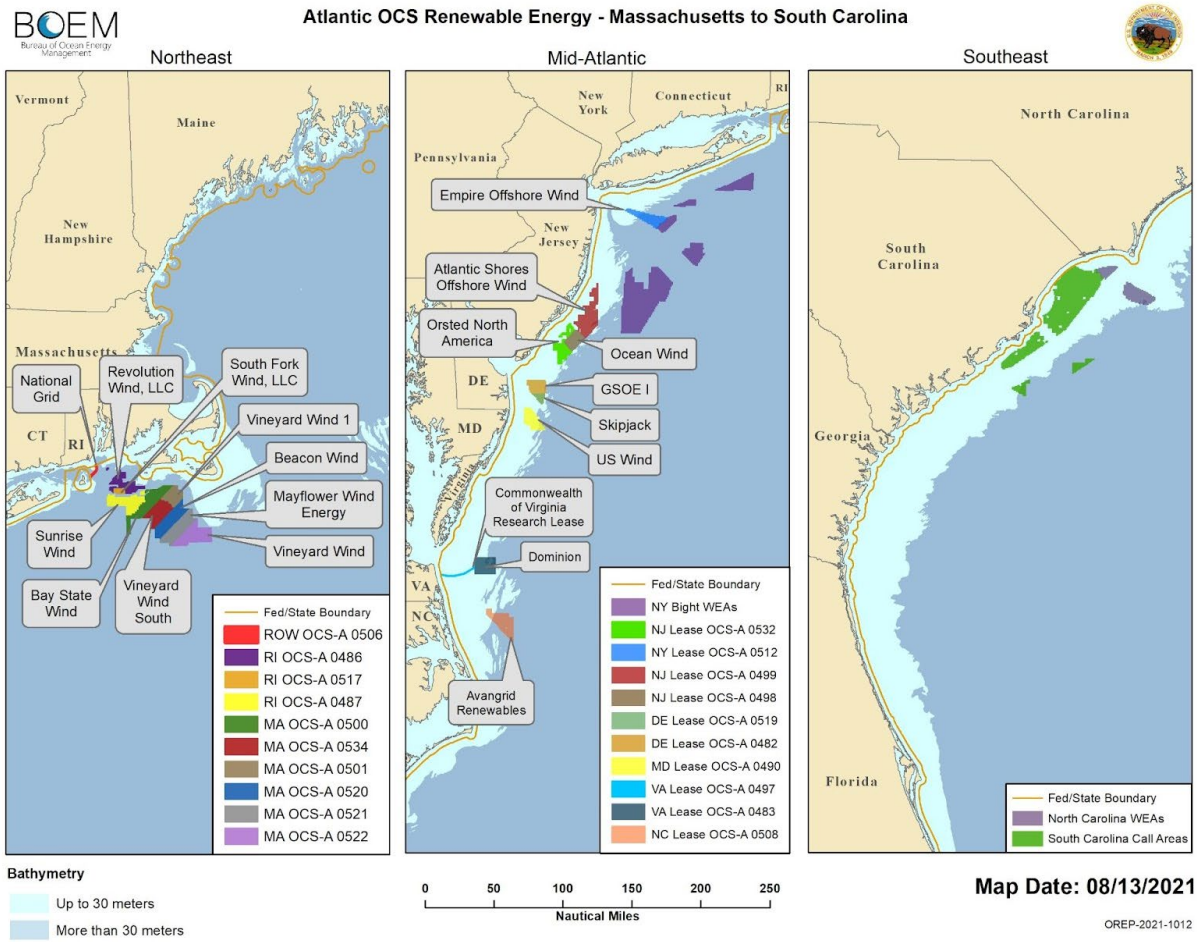
7.7.2.2.3 Impacts of Offshore Wind Energy Development on Socioeconomic Resources

One offshore wind pilot project off Virginia installed two turbines in 2020**.** Several potential offshore wind energy sites have been leased or identified for future wind energy development in federal waters from Massachusetts to North Carolina (see leasing map below –Figure 33). According to the Bureau of Ocean Energy Management (BOEM), approximately 22 gigawatts (close to 2,000 wind turbines based on current technology) of Atlantic offshore wind development via 17 projects are reasonably foreseeable along the east coast (BOEM 2020a) and additional development is likely to come. BOEM has recently begun a planning process for the Gulf of Maine via a regional intergovernmental renewable energy task force. It is not clear at this time where development might occur in the Gulf of Maine. Given the water depth in the region, floating turbines will likely be the primary type of wind turbine foundations to be deployed in the area. As the number of wind farms increases, so too would the level and scope of impacts to affected habitats, marine resources, and human communities.

37 See NMFS Ocean Noise Strategy Roadmap (footnote #2)

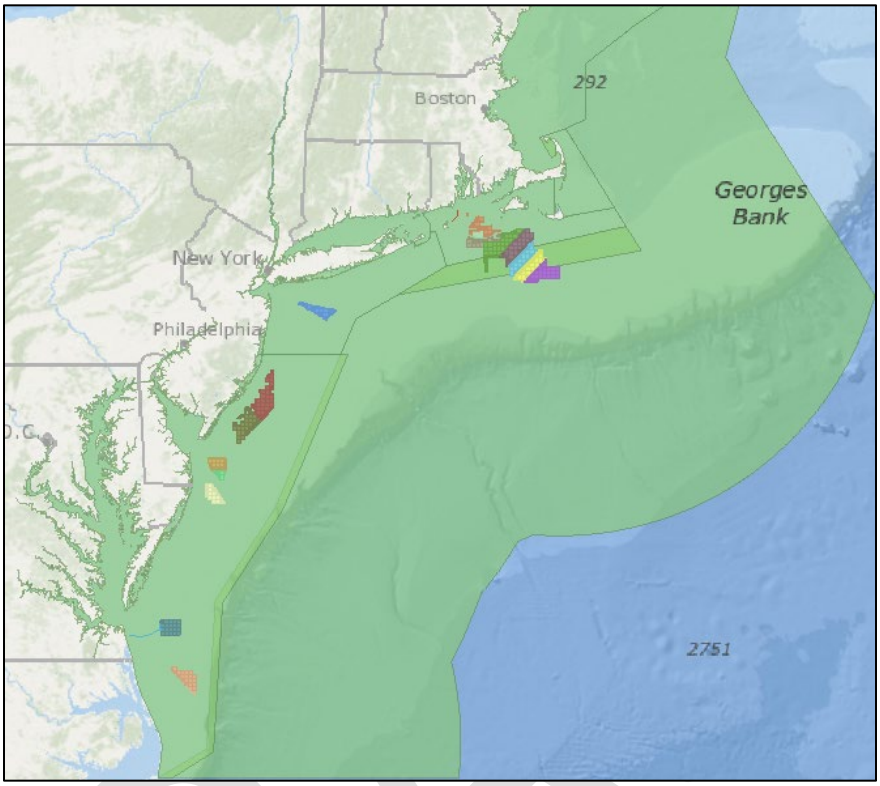
38 Changes in required flight altitudes due to proposed turbine height would affect aerial survey design and protocols (BOEM 2020a).

Figure 33. Map of BOEM Wind Planning areas, Wind Energy Areas, and Wind Leasing Areas on the Atlantic Outer Continental Shelf.



Offshore wind energy development is being considered in parts of the outer continental shelf that overlap with the lobster resource, from Massachusetts to Virginia where numerous lease sites have been established. The area of largest overlap is likely depicted in the Northeast pane of Figure 33, where all lease sites likely see relatively high effort by lobster permit holders. The lobster fishery has been active in these area at present and is expected to be for the near future, as discussed in Section 6.1 and Figure 34.

Figure 34. Overlap of Wind Lease Sites and Lobster Conservation Management Areas[39]



The social and economic impacts of offshore wind energy on fisheries could be generally negative due to the overlap of wind energy areas with productive lobster fishing grounds though impacts may vary by year based on species availability.

As there is substantial overlap between the lobster fishery and some of these lease areas, it is worth noting that this analysis represents only a rough approximation of potential effects from the areas; however, because this productive region of the resource would be expected to support lobster fishing in the future in the absence of offshore wind energy development, any restriction of fishing access to this region as a result of offshore wind energy development would be perceived as a negative overall effect to the fishery. In some cases, all effort could be displaced to another area, which could compensate for potential economic losses if vessel operators choose not to operate in the wind energy areas. In other cases, gear-specific effort may be displaced, where mobile gear harvesters are displaced to other areas while lobster harvesters are able to continue fishing around turbines. Lobster harvesters working in and around the turbines would likely see fewer gear conflicts with other fleets. Mobile gear harvesters could likely compensate for potential economic losses if by fishing in other areas. However, this displacement may create additional gear conflicts.

There could also be social and economic benefits in the form of jobs associated with construction and maintenance, and replacement of some electricity generated using fossil fuels with renewable sources (AWEA 2020).

It remains unclear how fishing or transiting to and from fishing grounds (whether or not those grounds are within a wind farm) might be affected by the presence of a wind farm. While no offshore wind

[39] Northeast Ocean Data Portal

developers have expressed an intent to exclude fishing vessels from wind turbine arrays once construction is complete, it could be difficult for operators to tow bottom-tending mobile gear or transit amongst the wind turbines, depending on the spacing and orientation of the array and weather conditions.[40] If vessel operators choose to avoid fishing or transiting within wind farms, effort displacement and additional steaming time could result in negative socioeconomic impacts to affected communities, including increased user conflicts, decreased catch and associated revenue, safety concerns, and increased fuel costs. If lobster vessels elect to fish within wind farms, effects could be both positive and negative due to decreased user conflicts within the wind areas, gear damage/loss, and increased risk of allision or collision.

7.7.2.2.4 Impacts of Oil and Gas Development on Biological and Socioeconomic Resources

For oil and gas, this timeframe could include leasing and possible surveys, depending on the direction of BOEM's 5-year planning process in the North and Mid-Atlantic regions. (Note that there are fewer oil and gas development activities in the region than offshore wind; therefore, the non-fishing impacts focus more heavily on offshore wind.) Seismic surveys to detect and quantify mineral resources in the seabed impact marine species and the acoustic environment within which marine species live. These surveys have uncertain impacts on fish behaviors that could cumulatively lead to negative population level impacts. For protected species (sea turtle, fish, small cetacean, pinniped, large whale), the severity of these behavioral or physiological impacts is based on the species' hearing threshold , the overlap of this threshold with the frequencies emitted by the survey, as well as the duration of time the surveys would operate, as these factors influence exposure rate (Ellison et al. 2011; Ellison et al. 2018; Finneran 2015; Finneran 2016; Madsen et al. 2006; Nelms et al. 2016; Nowacek et al. 2007; Nowacek et al. 2015; NRC 2000; NRC 2003; NRC 2005; Piniak 2012; Popper et al. 2014; Richardson et al. 1995; Thomsen et al. 2006; Weilgart 2013, Weilgart 2018). If fishery resources are affected by seismic surveys, then so in turn the fishermen targeting these resources would be affected. However, such surveys could increase jobs, which may provide some positive effects on human communities (BOEM 2020b). It is important to understand that seismic surveys for mineral resources are different from surveys used to characterize submarine geology for offshore wind installations, and thus these two types of activities are expected to have different impacts on marine species.

7.7.2.2.5 Offshore Energy Summary

The overall impact of offshore wind energy and oil and gas exploration on the affected species and their habitats at a population level is unknown, but likely to range from no impact to moderate negative, depending on the number and locations of projects that occur. The individual project phases (site assessment, construction, operation, and decommissioning) as well as different aspects of the technology (foundations, cables/pipelines, turbines) will have varying impacts on resources. Mitigation efforts, such as habitat conservation measures, time of year construction restrictions, layout modifications, and fishery compensation funds could lessen the magnitude of negative impacts as well. The overall impact on socioeconomic resources is likely slight positive to moderate negative; potentially positive due to a potential increase in jobs and recreational fishing opportunities, but slight positive to negative due to displacement and disruption of commercial fishing effort.

[40] The United States Coast Guard has considered transit and safety issues related to the Massachusetts and Rhode Island lease areas in a recent port access route study, and has recommended uniform 1 mile spacing in east-west and north-south directions between turbines to facilitate access for fishing, transit, and search and rescue operations. Future studies in other regions could result in different spacing recommendations (USCG 2020).

7.7.2.3 Global Climate Change

Global climate change affects all components of marine ecosystems and all VECs discussed in this document. Physical changes that are occurring and will continue to occur to these systems include sea-level rise, changes in sediment deposition; changes in ocean circulation; increased frequency, intensity and duration of extreme climate events; changing ocean chemistry; and warming ocean temperatures. The rate of physical and chemical changes in marine ecosystems have been most rapid in recent decades (Johnson et al. 2019). Emerging evidence demonstrates that these physical changes are resulting in direct and indirect ecological responses within marine ecosystems which may alter the fundamental production characteristics of marine systems (Stenseth et al. 2002). The general trend of changes can be explained by warming causing increased ocean stratification, which reduces primary production, lowering energy supply for higher trophic levels and changing metabolic rates. Different responses to warming can lead to altered food-web structures and ecosystem-level changes. Shift in spatial distribution are generally to higher latitudes (i.e., poleward) and to deeper waters as species seek cooler waters within their normal temperature preferences. Climate change will also potentially exacerbate the stresses imposed by fishing and other non-fishing human activities and stressors. Survival of marine resources under a changing climate depends on their ability to adapt to change, but also how and to what degree those other human activities influence their natural adaptive capacity.

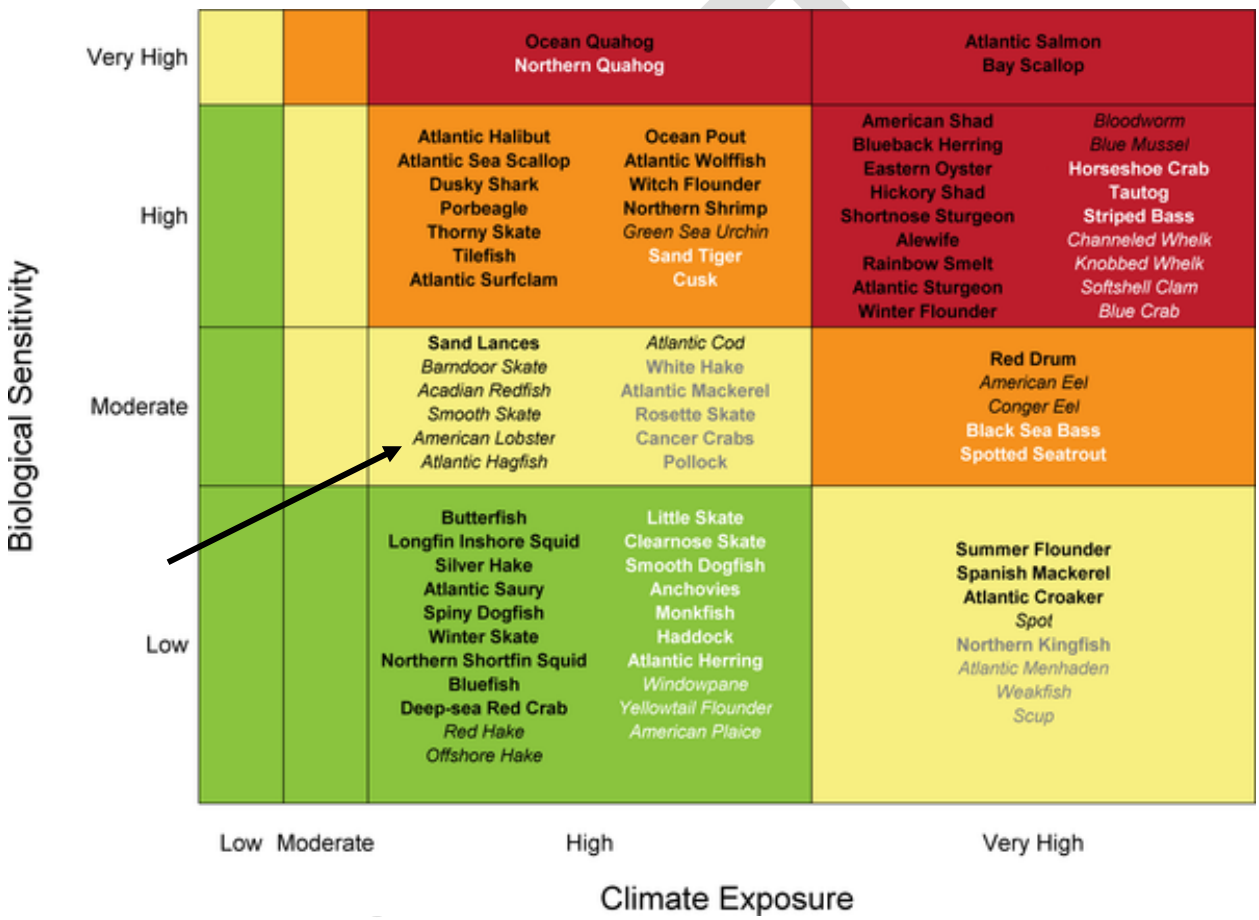
Results from the Northeast Fisheries Climate Vulnerability Assessment indicate that climate change could have impacts on Greater Atlantic Region-managed species that range from negative to positive, depending on the adaptability of each species to the changing environment (Hare et al. 2016). Based on this assessment, lobster were determined to have a moderate overall vulnerability rank. Climate exposure was determined to be high, as all life stages of lobster use marine habitats and show sensitivity to ocean temperature and acidification.

The directional effect of climate change is estimated to be neutral, but with a moderate degree of uncertainty. Research suggests that crustaceans are not negatively impacted by ocean acidification. American Lobster has changed distribution and abundances in the southern part of the region have decreased, but abundances in the northern part have increased dramatically. Thus, across the whole region the effects of climate change are estimated to be neutral. Recent warming has been linked to population decreases in the southern portion of the Northeast U.S. Shelf (Wahle et al., 2015) and population increases in the northern portion (Mills et al., 2012). Similar regional patterns were observed during a system-wide warming event in the 1950s (Taylor et al., 1957). Experimental work indicates negative physiological effects at summer temperatures now common in the southern part of the range (Dove et al., 2005). Juvenile shell growth increased under lower aragonite saturation state suggesting positive effects of ocean acidification (Ries et al., 2009). However, larval growth decreased and development times increased under lower pH conditions (Keppel et al., 2012). The distributional vulnerability rank was determined to be high. The biological sensitivity to climate change was determined to be moderate due to the population growth rate, spawning cycle, and other stressors. Lobsters are relatively slow-growing and can reach ages >50 years. Fertilization occurs after molting in the summer. Eggs are carried for almost a year before release as planktonic larvae. Other stressors are effecting lobster including a shell disease and decreased water quality in once highly productive bays and sounds in the region (e.g., Long Island Sound).

Overall vulnerability results for additional Greater Atlantic species, including most of the non-target species identified in this action, are shown in Figure 33 (Hare et al. 2016). While the effects of climate change may benefit some habitats and the populations of species through increased availability of food and nutrients, reduced energetic costs, or decreased competition and predation, a shift in environmental

conditions outside the normal range can result in negative impacts for those habitats and species unable to adapt. This, in turn, may lead to higher mortality, reduced growth, smaller size, and reduced reproduction or populations. Thus, already stressed populations are expected to be less resilient and more vulnerable to climate impacts. Climate change is expected to have impacts that range from positive to negative depending on the species. However, future mitigation and adaptation strategies to climate change may mitigate some of these impacts. The science of predicting, evaluating, monitoring and categorizing these changes continues to evolve. The social and economic impacts of climate change will depend on stakeholder and community dependence on fisheries, and their capacity to adapt to change. Commercial and recreational fisheries may adapt in different ways, and methods of adaptation will differ among regions. In addition to added scientific uncertainty, climate change will introduce implementation uncertainty and other challenges to effective conservation and management.

Figure 35. Overall climate vulnerability score



For species names and functional groups see Table 1. Overall climate vulnerability is denoted by color: low (green), moderate (yellow), high (orange), and very high (red). Certainty in score is denoted by text font and text color: very high certainty (>95%, black, bold font), high certainty (90–95%, black, italic font), moderate certainty (66–90%, white or gray, bold font), low certainty (<66%, white or gray, italic font).

7.7.2.4 Baseline Condition for the Resources, Ecosystems, and Human Communities

For the purposes of this CEA, the baseline condition is considered as the present condition of the VECs plus the combined effects of the past, present, and reasonably foreseeable future actions.

Human Communities: Human communities are complex and variable. Economic returns have generally been positive and have tended to make a positive contribution to fishing communities. The **combined effects of past, present, and reasonably foreseeable future actions is slight negative to slight positive**, as continued fisheries management will likely control effort and thus lead to short-term negative economic impacts for some participants and positive socioeconomic outcomes for other participants and communities. The **combined CEA baseline condition is slight positive** as short term negative impacts occur from effort limitations, but long-term positive conditions result from higher prices and continued management under ACLs and AMs. Resource supports viable communities and economies.

Target Species: As discussed in Section 6.2.3, the GOM/GBK stock is not depleted and overfishing is not occurring where catch is at or near record highs. The SNE Stock is depleted and overfishing is not occurring where catch is at historic lows. The **combined effects of past, present, and reasonably foreseeable future actions is slight positive**, as stocks are being managed sustainably. The **combined CEA baseline condition is slight positive**, as stocks are being managed sustainably.

Other Affected Species: As discussed in Section 6.3, bait and bycatch species are being managed under Federal and/or interstate fishery management plans, many with annual catch limits. Bycatch is relatively low in the lobster fishery, with many species being released alive. The **combined effects of past, present, and reasonably foreseeable future actions is slight positive**, as efforts to reduce bycatch continue and most non-target stocks continue to be sustainably managed under ACLs/AM. The **combined CEA baseline condition is slight positive**, as efforts to reduce bycatch continue most non-target stocks are not overfished/not overfishing.

Physical Environment: Fishing impacts are complex and variable and typically adverse (see Section 6.4). Effort reduction or gear modifications has reduced magnitude of the direct negative fishing impacts. Non-fishing activities have had historically negative but site-specific effects on habitat. The **combined effects of past, present, and reasonably foreseeable future actions is slight negative**, as continued fisheries management will likely control effort and thus fishery related habitat impacts but fishery and non-fishery related activities will continue to reduce habitat quality. The **combined CEA baseline condition is slight negative**, as continued fisheries management will likely control effort and thus fishery related habitat impacts; fishing pressure will continue to occur, but overall knowledge of and protection of key habitats continues to improve.

Protected Species: Leatherback and Kemp's ridley sea turtles are classified as endangered under the ESA; loggerhead (NW Atlantic DPS) and green (North Atlantic DPS) sea turtles are classified as threatened. All large whales in the Northwest Atlantic are protected under the MMPA. Of these large whales, North Atlantic right, fin, blue, sei, and sperm whales are also listed as endangered under the ESA. Small cetaceans and pinnipeds: protected under MMPA. The Gulf of Maine DPS of Atlantic salmon is threatened under ESA. The New York Bight, Chesapeake, Carolina, and South Atlantic DPSs of Atlantic sturgeon are endangered under ESA; while the Gulf of Maine DPS of Atlantic sturgeon is listed as threatened under the ESA. The **combined effects of past, present, and reasonably foreseeable future actions is no impact to slight positive**, as continued effort controls along with past and future ALWTRP regulations will likely help minimize protected species interactions and thus risks posed by the lobster fishery. The **combined CEA baseline condition is slight positive**, as continued catch and effort controls are likely to reduce gear encounters through effort reductions. Additional management actions taken under ESA/MMPA should also help mitigate the risk of gear interactions.

7.7.3 Magnitude and Significance of Cumulative Effects

In determining the magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action (i.e., the suite of proposed alternatives), as well as past, present, and future

actions, must be taken into account. The following section describes the expected effects of these actions on each VEC. Those past, present, and reasonably foreseeable future actions which may impact the VECs, and the direction of those potential impacts, are summarized in Section 7.7.2.1. See Table 41 for additional information on impact determinations.

In determining the magnitude and significance of the cumulative impacts of the preferred alternatives, the incremental impacts of the direct and indirect impacts should be considered, on a VEC-by-VEC basis, in addition to the effects of all actions (those identified and discussed relative to the past, present, and reasonably foreseeable future actions of both fishing and non-fishing actions). Section 7 provides a summary of likely impacts found in the various groups of management alternatives contained in this action. The CEA baseline that, as described above in Section 7.7.2.4, represents the sum of past, present, and reasonably foreseeable future actions and conditions of each VEC. When an alternative has a positive impact on the VEC, for example, reduced fishing mortality on a managed species, it has a positive cumulative effect on the stock size of the species when combined with "other" actions that were also designed to increase stock size. In contrast, when an alternative has negative effects on a VEC, such as increased mortality, the cumulative effect on the VEC would be negative and tend to reduce the positive effects of the other actions. The resultant positive and negative cumulative effects are described below for each VEC. As seen above in Section 7.7.2.2, non-fishing impacts on the VECs generally range from no impact to slight negative.

7.7.3.1 Magnitude and Significance of Cumulative Effects on Human Communities/Social-Economic Environment

Past fishery management actions taken to complement the Interstate Fishery Management Plan for American Lobster have had both positive and negative cumulative effects. They have benefitted domestic fisheries through sustainable fishery management, but can also reduce participation in fisheries. Management actions to date have limited the fishery and placed additional protection on broodstock, but impacts are largely dependent on how effective those measures are in meeting their intended objectives.

It is anticipated that the future management actions described in Section 7.7.2.1 will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on some human communities could occur if management actions result in reduced revenues. The same tradeoff exists for many non-fishing activities, resulting in overall indirect negative impacts on human communities by reducing marine resource availability; however, this effect is not quantifiable. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had overall positive cumulative effects. Despite the potential for negative short-term effects on human communities due to reduced revenue, positive long-term effects are expected due to the long-term sustainability of the managed stocks.

By providing revenues and contributing to the overall functioning of and employment in coastal communities, the lobster fishery has both direct and indirect social impacts. As previously described in Section 7.2, the preferred alternatives are unlikely to result in substantial changes to levels of fishing effort or the character of that effort relative to current conditions. Through implementation of this action, we seek to complement the Commission's Interstate Fishery Management Plan for American Lobster, and manage the lobster resource sustainably.

When the direct and indirect effects of the alternatives described in Section 5 are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects are expected to yield non-significant* ***slight positive*** *impacts.*

7.7.3.2 Magnitude and Significance of Cumulative Effects on Managed Species

Past fishery management actions taken to complement the Interstate Fishery Management Plan for American Lobster ensure that stocks are managed sustainably, and that regulations are compatible with the Commission's Interstate Fishery Management Plan and consistent with the Magnuson-Stevens Fishery Conservation and Management Act's National Standards. The impact of past management has been positive on the Gulf of Maine lobster stock with the stock near record high abundance and management measures that have taken steps to limit effort. The impact of past management has been mixed for the Southern New England stock. Despite limiting effort (limited entry and trap reductions) and implementing broodstock protection measures, the stock has not recovered from historic lows which are likely driven by changing ocean conditions. It is anticipated that the future management actions described in Section 7.7.2.1 will have additional indirect positive effects on the managed resources through actions which reduce and monitor bycatch, protect habitat, and protect the ecosystem services on which the productivity of managed species depends.

As noted previously in Section 7.3, none of the preferred alternatives are expected to result in significantly increased levels of fishing effort or changes to the character of that effort relative to current conditions. Therefore, impacts of the fisheries on the lobster resource are not expected to change relative to current conditions under the preferred alternatives (i.e., generally positive). The proposed actions described in this document would positively reinforce the past and anticipated positive cumulative effects on the lobster resource by achieving the objectives specified in the FMP.

When the direct and indirect effects of the alternatives described in Section 5 are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects are expected to yield non-significant* ***positive impacts*** *on the lobster resource.*

7.7.3.3 Magnitude and Significance of Cumulative Effects on Other Affected Species

The combined impacts of past Federal fishery management actions on other affected species have been mixed, as decreased effort and reduced catch of other affected species continue. Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species. As noted in Section 7.7.2.1, the actions described in this EA would likely continue this trend. Future actions are anticipated to continue rebuilding other affected species and limit the take of incidental/bycatch in the lobster fishery, particularly through mitigation measures like sub-ACLs, AMs in their individual FMPs. The other measures described in this action would likely have slight positive impacts on non-target species because continued management of directed stocks will also control catch of bycatch species and bait usage. In addition, the effects of non-fishing activities on other affected species are potentially negative.

As noted previously in Section 7.4, none of the preferred alternatives are expected to result in significantly increased levels of fishing effort or changes to the character of that effort relative to current conditions. Therefore, impacts of the fishery on other affected species are not expected to change relative to current conditions under the preferred alternatives (i.e., generally slight positive for other affected species).

When the direct and indirect effects of the alternatives described in Section 5 are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects are expected to yield non-significant* ***slight positive*** *on other affected species.*

7.7.3.4 Magnitude and Significance of Cumulative Effects on Physical Environment

Past fishery management actions taken through the lobster fishery have had positive cumulative effects on habitat. The actions have constrained fishing effort both at a large scale and locally and have implemented gear requirements, which may reduce impacts on habitat. It is anticipated that the future management actions described in Section 8.2.1 will result in additional direct or indirect positive effects on habitat through actions which protect EFH and protect ecosystem services on which these species' productivity depends.

Many additional non-fishing activities, as described above Section 8.2.2, are concentrated near-shore and likely work either additively or synergistically to decrease habitat quality. The effects of these action, combined with impacts resulting from years of commercial fishing activity, have negatively affected habitat. These impacts could be broad in scope. All the VECs are interrelated; therefore, the linkages among habitat quality, managed resources and non-target species productivity, and associated fishery yields should be considered. Some actions, such as coastal population growth and climate change may indirectly impact habitat and ecosystem productivity; however, these actions are beyond the scope of NMFS management. Reductions in overall fishing effort and protection of sensitive habitats have mitigated some negative effects.

As described in Section 7.5 the preferred alternatives are expected to have slight negative to no impacts. The preferred alternatives are expected to maintain or slightly decrease fishing effort compared to recent years. Although the impacted areas have been fished for many years with many different gear types and therefore will not likely be further impacted by these measures, continued fishing effort will continue to impact habitats. Thus, it is likely that fishing and non-fishing activities will continue to degrade habitat quality.

When the direct and indirect effects of the alternatives described in Section 5 are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects are expected to yield non-significant* ***slight negative impacts*** *on the physical environment and EFH.*

7.7.3.5 Magnitude and Significance of Cumulative Effects on Protected Species

Given their life history dynamics, large changes in protected species abundance over long time periods, and the multiple and wide-ranging fisheries management actions that have occurred, the cumulative impacts on protected species were evaluated over a long-time frame (i.e., from the early 1970s when the MMPA and ESA were implemented through the present). Numerous protected species (ESA listed and/or MMPA protected) occur in the Northwest Atlantic. The distribution and status of those species potentially affected by the action are described in Section 6.4. Depending on species and status, the population trends for these protected resources are variable (NMFS 2021; Atlantic Ocean Marine Mammal Stock Assessments):

Taking into consideration the above information and past fishery management actions, slight indirect positive cumulative effects on protected species have occurred. The actions have constrained fishing effort both at a large scale and locally, and have implemented, pursuant to the ESA, MMPA, or MSA, gear modifications, requirements, and management areas. These measures and/or actions have served to reduce interactions between protected species and fishing gear. It is anticipated that future management actions, described in Section 8.2.1 will result in additional indirect positive effects on protected species. These impacts could be broad in scope.

The preferred alternatives would not substantially modify current levels of fishing effort. They would allow existing fishing effort to continue. As described in Section 7.6, the proposed action is expected to have impacts on protected species that range from slight to moderate negative impacts, depending on the species.

When the direct and indirect effects of the alternatives described in Section 5 are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects are expected to yield non-significant* ***slight to moderate negative impacts to slight positive*** *impacts.*

7.7.4 Proposed Action on all the VECs

The preferred alternatives (i.e. the proposed action) are described in Section 5. The direct and indirect impacts of the proposed action on the VECs are described in Section 7 and are summarized in the Executive Summary. The magnitude and significance of the cumulative effects, including additive and synergistic effects of the proposed actions, as well as past, present, and future actions, have been taken into account (Section 8.3).

When considered in conjunction with all other pressures placed on the fishery by past, present, and reasonably foreseeable future actions, the preferred alternatives are not expected to result in any significant impacts, positive or negative. This action would implement an ownership cap requirements in Area 2, a trap cap reduction and an aggregate ownership cap requirement in Area 3, and mandatory harvester reporting for all areas. The preferred alternatives are expected to have no direct impacts on the Gulf of Maine/Georges Bank lobster stock, slight positive direct impacts on the Southern New England lobster stock, and slight positive indirect impacts to both stocks. Similar positive direct impacts and slight positive indirect impacts are expected to other affected species. Impacts to the physical environment are expected to be slightly negative, while moderate negative impacts are expected to protected species. The preferred alternative is expected to have short term slight negative by longer term slight positive impacts on human communities.

The preferred alternatives are consistent with other management measures that have been implemented in the past for the lobster fishery. These measures are part of a broader management scheme for the American lobster fishery. This management scheme has helped to rebuild stocks and ensure long-term sustainability, while minimizing environmental impacts.

The regulatory atmosphere within which federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of managed species, habitat, and human communities. NEPA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs from past, present and reasonably foreseeable future actions have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the VECs are not experiencing negative impacts, but rather that when considered as a whole and as a result of the management measure implemented in these fisheries, the overall long-term trend is positive.

There are no significant cumulative effects associated with the preferred alternatives based on the information and analyses presented in this document and in past FMP documents (Table 59). Cumulatively, through 2027, it is anticipated that the preferred alternatives will result in non-significant impacts on all VECs, ranging from moderate negative to slight positive.

Table 58. Summary of Cumulative Effects of the Preferred Alternatives

VEC	Direct/Indirect Impacts of Preferred Alternative	Combined Cumulative Effects Assessment Baseline Conditions	Cumulative Effects	Significant Cumulative Effects
Human Communities	short-term slight negative and long-term slight negative to slight positive impacts	Slight negative to slight positive	Slight positive	None
Target Species	GOM/GBK: No impact SNE: Slight positive	Slight positive	Slight positive	None
Other Affected Species	Slight positive	Slight positive	Slight positive	None
Physical Environment	Slight negative to no impact	Slight negative	Slight negative	None
Protected Resources	Slight negative to moderate negative	Slight positive	Slight to moderate negative to slight positive	None

8.0 Compliance with Other Applicable Laws

8.1 Atlantic Coastal Act

American lobster regulations will be issued under the Atlantic Coastal Fisheries Cooperative Management Act in Title 50 of the Code of Federal Regulations, Part 697. These regulations under the Atlantic Coastal Act are in keeping with the regulatory standard set forth in the Atlantic Coastal Act: 1) That the regulations be consistent with the National Standards set forth in the Magnuson-Stevens Act; and 2) that the regulations be compatible with the Commission's Interstate Fishery Management Plan for American Lobster. The measures evaluated in this EA are in keeping with the Atlantic Coastal Act regulatory standard to develop compatible regulations to the Commission's Lobster Plan and are consistent with the National Standards set forth in the Magnuson-Stevens Act.

8.2 Magnuson-Stevens Act

Compliance with National Standards: Atlantic Coastal Act requires that Federal regulations be consistent with the national standards of the Magnuson-Stevens Act.

National Standard 1 requires that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the U.S. fishing industry. By itself, the proposed management actions would not end overfishing and restore stocks of American lobster, but are part of and would complement an ongoing long-term management strategy to achieve these purposes (NMFS 1999). The degree to which the selected management actions would limit fishing effort and associated lobster mortality is difficult to state with precision. Nevertheless, it is anticipated that implementation of the active trap cap reductions and ownership caps, when combined with other lobster management measures, would increase the overall effectiveness of those measures in achieving Lobster Plan objectives and ultimately end overfishing and rebuild stocks of American lobster under National Standard 1. Additional lobster management measures in both state and Federal waters would be needed in the future in accordance with the resource management requirements addressed by the Lobster Plan to end resource overfishing.

National Standard 2 requires that management measures be based upon the best scientific information available. The information base for evaluation of the proposed measures in this action is based upon the best scientific information available and incorporates the scientific review and associated approval by state and Federal lobster scientists through the Commission's Lobster Technical Committee. For example, the 2009 and 2015 Commission Stock Assessment Report, provides the basic underpinnings of the proposed action. In addition, current NMFS vessel, permit, dealer and observer data is incorporated in the assessment of impacts for this action. Further, the proposed measures address the management and policy guidance provided by the scientists on the Lobster Stock Assessment Review Panel regarding the measures recommended for facilitating the assessment and sustainability of the lobster resource.

National Standard 3 requires, as practicable, that an individual stock be managed as a unit throughout its range, and that interrelated stocks be managed as a unit or in close coordination. NMFS believes that the proposed action illustrates the consistency and coordination sought by this National Standard. The three stock areas for American lobster are being managed, throughout the range of the population from Maine to North Carolina, through an area management approach in coordination with state jurisdictional management and Federal management through the Commission's Lobster Plan and complementary Federal regulations. The measures associated with this action support the coastwide management program for the American lobster resource.

National Standard 4 requires that conservation and management measures not discriminate between residents of different states. As a preliminary matter, these proposed actions are not state specific. That is, all Federal permit holders within the impacted LCMA must adhere to the same regulations regardless of the state from which they hail. Further, the selected management actions for the EEZ were developed in consultation with the Commission and the lobster industry through its LCMT program, and take into account the social and economic distinction among the nearshore and offshore EEZ fisheries. NMFS gave great consideration to the expertise of the LCMTs, whose membership is appointed by the involved states, and who were presumed to have intimate knowledge of how their proposal would affect their state's fishery. Further, despite a dearth of information due to the lack of mandatory harvester reporting, NMFS examined the best available information to discern any unintended discriminatory effect and used its best efforts to create counter measures to guard against such unexpected eventualities.

Federal vessels fishing in LCMAs 2 and 3 from several states may be impacted by the proposed actions, however the intent of the proposed measures would be to implement active trap cap reductions, ownership caps, and coastwide harvester reporting requirements. These proposed measures are intended to be consistent within each impacted LCMA and, although not a mirror-image of state regulations, support the Commission's plan by seeking to apply a consistent management regime across all involved Federal vessels within each LCMA.

National Standard 5 requires that, where applicable, conservation and management measures promote efficiency in the utilization of fishery resources. The proposed actions are consistent with such a standard. Measures in this action were developed to scale the SNE fishery to the size of the SNE resource. Proposals to active cap reductions and ownership caps, in conjunction with the existing trap transfer program would provide economic benefits and promote efficiency by allowing participants to regulate their trap allocation or even exit the fishery based on their situation and the economics within the LCMA-specific fishery.

National Standard 6 requires that conservation and management measures take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. The proposed management measures take into account the variations in fisheries, fishery resources, and catches, in consultation with the Commission and industry groups through coordination with LCMTs, and among the

inshore and offshore EEZ fisheries. Industry involvement through the Commission process ensures flexibility in management of the fisheries, and fishery resource over seven management areas. Additionally, the proposed measures respond to the recommendations of the scientists of the American Lobster Stock Assessment Peer Review Panel and TC to facilitate the management and sustainability of the lobster resource through fishing effort controls.

National Standard 7 requires that, where practicable, conservation and management measures minimize costs and avoid unnecessary duplication. The proposed measures are intended to ensure state and Federal regulations are compatible, minimize confusion by industry participants, enhance compliance, and avoid duplication. The implementation of these measures is prompted by the Commission's intent to respond to LCMT recommendations and ensure flexibility in the management of the fisheries. The Commission has mandated that the states implement these measures and has similarly requested that NMFS do the same.

The intent of this proposed action would be to implement active trap cap reductions, ownership caps, and coastwide harvester reporting requirements met compatible criteria to those specified in the Lobster plan and implemented by state regulatory agencies. Compatible measures and coordinated management of the ownership caps would reduce administrative costs to agencies and industry participants, clarify and standardize application procedures, minimize industry confusion over permitting procedures, and more effectively quantify participation and trap fishing effort in the future.

National Standard 8 requires that, consistent with fishery conservation requirements, conservation and management measures take into account the importance of fishery resources to fishing communities. As a preliminary matter, this action, consistent with the Commission's plan, is intended to reduce latent effort in the SNE fishery and scale the fishery to the size of the resource, and prevent future expansion. Sustained participation of communities and consideration of economic impacts is facilitated through the Lobster Plan's management provisions, which allow fishing communities to participate in, and provide public comment on, proposed management measures. NMFS gave consideration to this public input when developing these measures. Specifically, the proposed management actions developed in consultation with the Commission and the lobster industry through the LCMTs, and take into account the social and economic distinction among the nearshore and offshore EEZ fisheries. NMFS gave great consideration to the expertise of the LCMTs, whose membership is appointed by the involved states, and who were presumed to have intimate knowledge of how their proposal would affect their state's and community's fishery.

National Standard 9 requires that, to the extent practicable, conservation and management measures minimize bycatch, and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. The proposed management measures aim at removing latent effort from the fishery. This may result in a minimal decrease in regulatory discards in this small component of the fishery. However, the proposed measures, in conjunction with the trap transfer program, including the use of the conservation tax applicable with partial trap transfers, are intended to address latent effort, and are not expected to affect fishing mortality since the lobsters are generally discarded alive.

National Standard 10 requires that, to the extent practicable, conservation and management measures promote the safety of human life at sea. The selected management actions will have no anticipated impact on safety at sea, because it would not result in any significant changes in fishing practices.

8.3 Essential Fish Habitat

Section 305(b) of the Magnuson-Stevens Act requires all Federal agencies to consult with NMFS' Habitat Conservation Division on any future action that may adversely affect EFH. NMFS will conducted an initial EFH consultation.

Management measures identified, including minimum size, landing disposition, broodstock protections, incidental limits and definition, and reporting requirements are not expected to adversely impact EFH. Additional measures, including permitting authorize trap gear to be fished, which may have slight negative impacts on habitat.

Table 59. Management Authority for FMPs

Council/Management Authority	FMPs
New England Fishery Management Council (NEFMC)	Multispecies; Sea Scallop; Monkfish, Red Crab
Mid-Atlantic Fishery Management Council (MAFMC)	Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Surf Clam and Ocean Quahog
South Atlantic Fishery Management Council (SAFMC)	Coastal Migratory Pelagics; Red Drum; Golden Crab
NMFS	Atlantic Highly Migratory Species; Atlantic Billfishes

8.4 National Environmental Policy Act

This EA is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This action was initiated in 2017 and the agency has decided to proceed under the 1978 regulations.

The Council on Environmental Quality (CEQ) Regulations state that the determination of significance using an analysis of effects requires examination of both context and intensity and lists ten criteria for intensity (40 CFR 1508.27). In addition, the Companion Manual for National Oceanic and Atmospheric Administration Administrative Order 216-6A provides sixteen criteria, the same ten as the CEQ Regulations and six additional, for determining whether the impacts of a Proposed Action are significant. Each criterion is discussed below with respect to the Proposed Action and considered individually as well as in combination with the others.

1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

The Proposed Action is not expected to result in significant impacts on any of the VECs, nor will it result in overall significant effects, either beneficial or adverse. The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting. Overall, this action is expected to have slight positive impacts for target species (lobster), because it may help to scale the SNE fishery to the size of the SNE resource (Section 7.2). Impacts on other VECs, including habitat and other affected species (bycatch and bait) are slight negative and slight positive, respectively. The proposed action would potentially result in short term slight negative impacts to the fishery but longer term slight positive impacts, should the SNE stock respond these management measures. Due to the gear deployed in the fishery, interaction risks with protected species may decline or be slightly elevated depending on if latent traps are removed from the fishery or reactivated, potentially resulting in slight to moderate negative impacts to protected species.

2. Can the proposed action reasonably be expected to significantly affect public health or safety?

The proposed action does not alter the way the industry conducts fishing activities for the target species. Therefore, no changes in fishing behavior are anticipated that would affect safety. The overall effect of

the proposed action on these fisheries, including the communities in which they operate, will not adversely impact public health or safety.

3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

Historic or cultural resources (e.g., shipwrecks) may be present in the area where the lobster fishery occurs. However, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is unlikely that the proposed action would result in substantial impacts to unique areas. Fishing activity is prohibited within the Northeast Canyons and Seamounts National Marine Monument which overlaps with the lobster fishery, resulting from a 2021 Executive Order (86 FR 57349, October 15, 2021). Section 7.4 describes the slight negative impacts of this fishery on habitat, including the corals and seamounts protected by the Monument.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The impacts of the Proposed Action on the human environment are described in Section 7.6. The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting. The Proposed Action is based upon measures contained in the Commission's Lobster Plan which have been in place for years. In addition, the scientific information upon which these measures are based includes the most recent information available. Therefore, the measures contained in this action are not expected to be highly controversial.

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The impacts of the Proposed Action on the human environment are described in Section 7.6. The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting for the lobster fishery. The proposed action is not expected to substantially alter fishing methods or activities and is not expected to substantially alter fishing methods or activities and is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

6. Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting and is not expected to substantially alter fishing methods or activities and is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When a new stock assessment or other biological information about lobster becomes available in the future, additional management measure may be considered. Therefore, the proposed action will not result in significant effects, nor does it represent a decision in principle about a future consideration.

7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

The impacts of the Proposed Action on the biological, physical, and human environment are described in Section 7.0. The cumulative effects of the Proposed Action on target and non-target species are detailed in Section 8.0. The Proposed Action is not expected to substantially increase fishing effort or substantially

alter the spatial and/or temporal distribution of current fishing effort. The improvements in the condition of the stock through implementation of these management measures is expected to generate positive impacts overall.

8. Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

Although shipwrecks may be present in the area where fishing occurs, including some registered on the National Register of Historic Places, vessels typically avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is unlikely that the Proposed Action would adversely affect the historic resources listed above.

9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?

Pursuant to section 7 of the Endangered Species Act (ESA), we issued a Biological Opinion (Opinion) on May 27, 2021, that considered the effects of our authorization of ten fishery management plans (FMP), our North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2, on ESA-listed species and designated critical habitat. The ten FMPs considered in the Opinion include the: (1) American Lobster; (2) Jonah crab; (3) Atlantic Bluefish; (4) Atlantic Deep-sea Red Crab; (5) Mackerel, Squid, and Butterfish; (6) Monkfish; (7) Northeast Multispecies; (8) Northeast Skate Complex; (9) Spiny Dogfish; and (10) Summer Flounder, Scup, and Black Sea Bass FMPs. The American Lobster and Jonah Crab FMPs are permitted and operated through implementing regulations compatible with the interstate fishery management plans (ISFMP) issued under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, the other eight FMPs are issued under the authority of the Magnuson-Stevens Fishery Conservation and Management Act.

The 2021 Opinion determined that the proposed action may adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right, fin, sei, or sperm whales; the Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, leatherback, Kemp's ridley, or North Atlantic DPS of green sea turtles; any of the five DPSs of Atlantic sturgeon; Gulf of Maine DPS Atlantic salmon; or giant manta rays. The Opinion also concluded that the proposed action is not likely to adversely affect designated critical habitat for North Atlantic right whales, the Northwest Atlantic Ocean DPS of loggerhead sea turtles, U.S. DPS of smalltooth sawfish, Johnson's seagrass, or elkhorn and staghorn corals. An Incidental Take Statement (ITS) was issued in the Opinion. The ITS includes reasonable and prudent measures and their implementing terms and conditions, which NMFS determined are necessary or appropriate to minimize impacts of the incidental take in the fisheries assessed in this Opinion.

The proposed action is not expected to alter overall fishing operations, lead to a substantial increase of fishing effort, or alter the spatial and/or temporal distribution of current fishing effort in a manner that would increase interaction risks with ESA-listed species or cause adverse effects to critical habitat. Based on this, we have preliminarily determined that fishing activities pursuant to this action will not affect endangered and threatened species or critical habitat in any manner not considered in the 2021 Opinion on this fishery.

10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting and is not expected to alter fishing methods or activities such that they threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. The Proposed Action has been found to be consistent with other applicable laws (Section 9.0).

11. Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?

Based on the impacts of the Proposed Action on marine mammals (see Section 7.5), NMFS has concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to occur in the management unit of the American lobster fishery. Further, the activities to be conducted under the proposed alternatives are within the scope of the American lobster fishery and will not result in impacts to marine mammals that go above and beyond those considered in previous consultations.

12. Can the proposed action reasonably be expected to adversely affect managed fish species?

The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting, which complement the Commission Lobster Plan. The Proposed Action is not expected to adversely affect lobster or other affected species that are managed in this region. The biological impacts of the Proposed Action on target species are analyzed in Section 7.2 and other affected species in Section 7.3.

13. Can the proposed action reasonably be expected to adversely affect essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act?

The proposed action is not expected to have a substantial impact on the natural or physical environment. The proposed action is not expected to alter fishing methods or activities or substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, there are no adverse social or economic impacts interrelated with significant natural or physical environmental effects.

14. Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?

The proposed action is not expected to have significant impacts on the natural or physical environment, including vulnerable marine or coastal ecosystems. The American lobster fishery not adversely affect these areas, and the proposed action is not expected to alter fishing methods or activities or to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The areas fished for American lobster have been fished for many years, and this action is not expected to change the core locations of any fishing activity. The proposed action is not expected to alter lobster fishing patterns relative to this protected area or in any other manner that would lead to adverse impacts on deep sea coral or other vulnerable marine or coastal ecosystems.

15. Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?

The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting. It is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. The action is not expected to substantially alter fishing methods or activities or fishing effort or the spatial and/or temporal distribution of current fishing effort.

16. Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

The proposed action establishes ownership caps, reduces the active trap cap, and requires mandatory harvester reporting. There is no evidence or indication that this fishery has ever resulted in the introduction or spread of nonindigenous species. The proposed Action is not expected to substantially alter fishing methods or activities and is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed action would be expected to result in the introduction or spread of a non-indigenous species.

DETERMINATION

In view of the information and analysis presented in this document, it is hereby determined that the Proposed Action will not significantly impact the quality of the human environment as described above. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an environmental impact statement for this action is not necessary.

_____ _____

Regional Administrator, Greater Atlantic Region, NMFS Date

8.5 Endangered Species Act

Pursuant to section 7 of the Endangered Species Act (ESA), we issued a Biological Opinion (Opinion) on May 27, 2021, that considered the effects of the NMFS' authorization of ten fishery management plans (FMP), our North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2, on ESA-listed species and designated critical habitat. The ten FMPs considered in the Opinion include the: (1) American Lobster; (2) Jonah crab; (3) Atlantic Bluefish; (4) Atlantic Deep-sea Red Crab; (5) Mackerel, Squid, and Butterfish; (6) Monkfish; (7) Northeast Multispecies; (8) Northeast Skate Complex; (9) Spiny Dogfish; and (10) Summer Flounder, Scup, and Black Sea Bass FMPs. The American Lobster and Jonah Crab FMPs are permitted and operated through implementing regulations compatible with the interstate fishery management plans (ISFMP) issued under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, the other eight FMPs are issued under the authority of the Magnuson-Stevens Fishery Conservation and Management Act.

The 2021 Opinion determined that the NMFS' authorization of ten fishery management plans (FMP), our North Atlantic Right Whale Conservation Framework, and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment: (1) May adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right, fin, sei, or sperm whales; the Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, leatherback, Kemp's ridley, or North Atlantic DPS of green sea turtles; any of the five DPSs of Atlantic sturgeon; Gulf of Maine DPS Atlantic salmon; or giant manta rays; and, (2) is not likely to adversely affect designated critical habitat for North Atlantic right whales, the Northwest Atlantic Ocean DPS of loggerhead sea turtles, U.S. DPS of smalltooth sawfish, Johnson's seagrass, or elkhorn and staghorn corals. An Incidental Take Statement (ITS) was issued in the Opinion. The ITS includes reasonable and prudent measures and their implementing terms and conditions, which NMFS determined are necessary or appropriate to minimize impacts of the incidental take in the fisheries assessed in this Opinion.

The proposed action is not expected to alter overall fishing operations, lead to a substantial increase of fishing effort, or alter the spatial and/or temporal distribution of current fishing effort in a manner that would increase interaction risks with ESA-listed species or cause adverse effects to critical habitat. Based

on this, it has been determined that fishing activities pursuant to this action will not affect endangered and threatened species or critical habitat in any manner not considered in the 2021 Opinion on this fishery

8.6 Marine Mammal Protection Act

NMFS has reviewed the impacts of this action on marine mammals and concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to occur in the management unit of the American Lobster Plan. For further information on the potential impacts of the proposed management action, see Section 7.0.

8.7 Coastal Zone Management Act

The principal objective of the CZMA is to encourage and assist states in developing coastal management programs, to coordinate state activities, and to safeguard regional and national interest in the coastal zone. Section 307(c) of the CZMA requires federal activity affecting the land or water uses or natural resources of a state's coastal zone to be consistent with that state's approved coastal management program, to the maximum extent practicable. On DATE, **NMFS provided a copy of the draft environmental assessment and a consistency determination to the state coastal management agency in every state with a Federally approved coastal management program whose coastal uses or resources are affected by these lobster management measures.** Each state has 60 days in which to agree or disagree with the determination regarding consistency with that state's approved coastal management program. If a state fails to respond within 60 days, the state's agreement will be presumed.

8.8 Administrative Procedure Act

Section 551-553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. Currently, the NMFS is not requesting any abridgement of the rulemaking process for this action.

8.9 Information Quality Act

Utility of Information Product

The information presented in this environmental assessment (EA) is helpful to the intended users (the affected public) by clearly describing the purpose and need of the action, the measures proposed, and their impacts. A discussion of the reasons for selecting the Proposed Action is included so that intended users may fully understand of the Proposed Action and its implications. The intended users of this document include individuals involved in the lobster fishery (e.g., fishing vessels, processors, fishery managers) and others interested in the management of the lobster fishery. The information in this EA will be helpful and beneficial to owners of vessels holding lobster permits, since it will notify them of the measures contained in the associated rulemaking. This information will enable these individuals to adjust their management practices and make appropriate business decisions. Until a proposed rule is prepared and published, this document is the principal means by which the information contained herein is publicly available. The information in this EA is based on the most recent available information from the relevant data sources, including detailed and relatively recent information on the lobster resource and, therefore, represents an improvement over previously available information. This document will be subject to public comment through proposed rulemaking, as required under the Administrative Procedure Act and, therefore, may be improved based on comments received.

This document is available in several formats, including printed publication, and online through the NMFS's web page. The *Federal Register* notice that announces the proposed rule and the final rule and

implementing regulations will be made available in printed publication, on the website for GARFO, and through the Regulations.gov website. The *Federal Register* documents will provide metric conversions for all measurements.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, "Security of Automated Information Resources," of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity of Information Product

For purposes of the Pre-Dissemination Review, this document is considered to be a "Natural Resource Plan." Accordingly, the document adheres to the published standards of the Atlantic Coastal Act, the National Standards contained in the Magnuson-Stevens Act; the National Standard Guidelines; the Operational Guidelines, Fishery Management Plan Process; the Essential Fish Habitat Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act. This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Several sources of data were used in the development of the EA. These data sources included, but were not limited to, historical and current landings data from CFDRS, VTR data, and fisheries independent data collected through the NMFS bottom trawl surveys. The analyses contained in this document were prepared using data from accepted sources. These analyses have been reviewed by NMFS staff, as appropriate.

Despite current data limitations, the conservation and management measures considered for this action were selected based upon the best scientific information available. The analyses important to this decision used information from the most recent complete calendar years, generally through 2019. The data used in the analyses provide the best available information on the number of permits, both active and inactive, in the fishery, the catch (including landings and discards) by those vessels, and the revenue produced by the sale of those landings to dealers. Specialists (including NMFS statisticians, fishery policy analysts, and NEPA policy analysts) who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to the lobster fishery. The policy choice is clearly articulated in Sections 4.0 and 5.0 of this document. The supporting science and analyses, upon which the policy choice was based, are summarized and described in Sections 6.0 and 7.0 of this EA. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency.

The review process used in preparation of this document involves the responsible GARFO, NEFSC, and NMFS Headquarters. NMFS's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, population biology, and the social sciences. Review by staff at GARFO is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action proposed in this EA and clearance of any rules prepared to implement resulting regulations is conducted by staff at NMFS Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

In preparing this action, NMFS must comply with the requirements of the Atlantic Coastal Act, the Magnuson-Stevens Act National Standards, the National Environmental Policy Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Information Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas). NMFS has determined that the proposed action is consistent with the all applicable laws and executive orders.

8.10 EO 13132 (Federalism)

This Executive Order (E.O.) established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The E.O. also lists a series of policy making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. However, no federalism issues or implications have been identified relative to the proposed measures in this action. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under E.O. 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Commission. No comments were received from any state officials relative to any federalism implications that may be associated with this action.

8.11 EO 13158 (Marine Protected Areas)

The E.O. on Marine Protected Areas (MPAs) requires each Federal agency whose actions affect the natural or cultural resources that are protected by an MPA to identify such actions, and, to the extent permitted by law, and to the maximum extent practicable, in taking such actions, avoid harm to the natural and cultural resources that are protected by an MPA. This E.O. directs Federal agencies to refer to the MPAs identified in a list of MPAs that meet the definition of MPA for the purposes of the E.O. The E.O. requires that the Departments of Commerce and the Interior jointly publish and maintain such a list of MPAs. A list of MPA sites has been developed and is available at: http://marineprotectedareas.noaa.gov/nationalsystem/nationalsystemlist/. No further guidance related to this E.O. is available at this time.

8.12 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to reduce the paperwork burden on the public. The Director of the Office of Management and Budget (OMB) has the authority to manage information collection and record keeping requirements in order to reduce paperwork burdens. This authority encompasses the establishment of guidelines and policies and the approval of information collection requests. The selected management actions in this EA do contain new collection of information requirements subject to the PRA.

A paperwork reduction act analysis, including a revised Form 83i and supporting statement will be submitted to OMB along with the proposed rule for this action. The reporting requirements may be applicable to the permitting and reporting options. This action would create a new collection for the lobster fishery. This action would require lobster harvesters to submit Federal vessel trip reports. A paperwork reduction act analysis, including a revised Form 83i and supporting statement will identify the expected increase in the public reporting burden, by annual response hours, and an estimated annual cost to the public.

8.13 Regulatory Flexibility Act (RFA)

8.13.1 Basis and Purpose for Rule

The need and purpose of the actions are set forth in Section 4.6 of this document and are incorporated herein by reference. A description of the action, the reason for consideration, and its legal basis are contained in Sections 4 and 5 of this EA. The proposed management measures would affect small entities engaged in the Area 2 and 3 lobster fishery.

8.13.2 Description of the Reasons Why Action by NMFS is Being Considered

In response to the continued decline of the SNE lobster stock, the Commission approved Addenda XXI and XXII to revise the Areas 2 and 3 management programs. In addition, the Commission approved Addenda XXVI to improve data collection programs. The Commission recommended that federal government to implement measures consistent with these addenda. To the extent practicable, we aim to implement regulations consistent with Commission recommendations, and those promulgated by our partner states.

8.13.3 The Objectives and Legal Basis for the Preferred Alternatives

The objective of the proposed action is to adjust American lobster management, including the Area 2 and 3 management programs in response Addenda XXI, XXII, and XXVI to the American lobster ISFMP. The purpose of the proposed measures is to manage the federal lobster fishery in a manner consistent with:

- The Atlantic Coastal Act,
- the National Standards of the Magnuson-Stevens Act,
- the Jonah Crab Plan,
- states laws and regulations,
- and other applicable federal laws.

The legal basis for the proposed action is the American Lobster ISFMP and promulgating regulations at § 697.

9.13.4 Description and Estimate of the Number of Small Entities

8.13.5 Economic Impacts of the Proposed Rule on Small Entities

8.13.6 Alternatives which Minimize Any Significant Economic Impact of the Proposed Action on Small Entities

Most alternatives presented in this document minimize impacts of the proposed action on small entities. Sections 4.4 and 4.5 describe recommendations of the Commission. Section 5 describes the management alternatives based on Commission recommendations. Given the current state of the Area management

programs, the alternatives presented in Section 5 remain consistent with the Commission's recommendations but do not consider implemented outdated management measures (i.e., trap banking). Further, the preferred reporting alternative would leverage technology to minimize the burden of completing and submitting/mailing paper Federal vessel trip reports.

8.13.7 Reporting, Recordkeeping, and Other Compliance Requirements

This action contains a new reporting and recordkeeping requirements for federal American lobster permit holders that would involve costs to vessels to catch lobsters. Vessels would be required to complete a Federal vessel trip report at sea and submit the report to GARFO within 48 hours of returning to port.

8.13.8 Duplication, Overlap, or Conflict with Other Federal Rules

This action does not duplicate, overlap, or conflict with any other federal laws

8.14 Executive Order 12866

The purpose of E.O 12866 is to enhance planning and coordination with respect to new and existing regulations. This E.O. requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be "significant." This section represents the regulatory impact review (RIR), which includes an assessment of the costs and benefits of the proposed action in accordance with the guidelines established by E.O. 12866. The analysis included in the RIR shows that this action is not a "significant regulatory action" because it will not affect in a material way the economy or a sector of the economy. NMFS guidelines provide criteria to be used to evaluate whether a proposed action is significant. A "significant regulatory action" means any regulatory action that is likely to result in a rule that may:

> (1) Have an annual effect on the economy of $100 million or more, or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities.
> (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.
> (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.
> (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

A more detailed discussion of economic impact is provided in Section 7.2. The discussion to follow provides a summary of those findings.

8.14.1 Objectives

The objective of the preferred alternatives is to manage the American lobster fishery in a manner that maximizes resource sustainability, recognizing that Federal management occurs in consort with state management. To achieve this purpose, this EA analyzes management measures to address poor stock conditions and persistent recruitment failure of the SNE American lobster stock and mandatory harvester reporting requirements, as approved by the Commission in Addenda XXI, XXII, and XXVI to Amendment 3 of the Lobster ISFMP.

8.14.2 Description

A description of the entities affected by this action, specifically the stakeholders of the American lobster resource, is provided in Section 6.1 of this document.

8.14.3 Problem Statement

The need and purpose of the actions analyzed in this EA are set forth in Section 4.6 of this document and are incorporated herein by reference.

8.14.4 Analysis of Alternatives

This section analyzes each proposed alternative of this action as mandated by EO 12866. The focus is on the expected impacts of each proposed measure. Much of this information is captured already in the detailed human communities impacts analyses of Section 7.2 of this document. This RIR will summarize and highlight the major findings of the economic and social impacts analysis provided in Section 7.2 of this document, as mandated by EO 12866.

When assessing net benefits and costs of the regulations, it is important to note that the analysis focuses on producer surplus only, namely the impacted fishing businesses. Consumer surplus is not expected to be affected by any of the regulatory changes proposed in this, given the large supply of domestic and foreign seafood imports. It is also important to note that much of the analysis included in the RIR is qualitative given the nature of the proposed regulation, available data, and uncertainty of outcomes.

8.14.4.1 Area 2 Measures

No economic impacts associated with Area 2 ownership caps are expected in the short term, while longer term slight negative impacts can be expected. Area 2 alternatives would implement an ownership cap, which reinforces and codifies the owner/operator nature of the fishery. Recommended ownership caps are set at a level at or slightly above most entities' trap allocation. Entities who exceed these limits were recommended to be able to retain these permits/traps, but not acquire additional permits and traps. Thus, this action largely allows the fishery to operate in a status quo manner. In the future, the lack of additional restrictions on the fishery could continue to negatively impact the SNE lobster stock, which could negatively impact future catch rates, and therefore, income of these harvesters.

8.14.4.2 Area 3 Measures

Some negative economic impact are expected from the Area 3 alternatives. Area 3 measures consider an active trap cap reduction, and ownership caps based on various control dates. Overall, a maximum loss of revenue between approximately $600,000 and $800,000 is expected, as shown in Table 47. This total is estimated as the maximum, because permit holders would be allowed to engage in the Trap Transfer Program, this recouping some of these potential losses. However, should any of these traps be permanently retired from the fishery, this could result in improvements to lobster stocks, and thus and the possibility of future economic gains to the fishery.

8.14.4.3 Mandatory Harvester Reporting

Slight negative economic impacts associated with mandatory reporting are expected. Approximately half of Federal lobster permit holder must already submit eVTRs, by virtue of holding other GARFO permits with eVTR requirements. Thus, this action would institute a new requirement for the other half (approximately 1,400 permit holders). Those permit holders who currently do not report will be subject to some costs associated with the time to fill out and submit a VTR. While GARFO-approved electronic reporting applications are free and most can be easily installed on a mobile phone or tablet and would not require the space and expense of a computer, they do still involve the purchase and connection (mobile data or wifi) of that mobile or tablet device. We estimate that a device may cost between $0-200, and monthly wireless carrier fees may reach up to $50 per month. However, these devices are ubiquitous in society for personal use, making these costs effectively discountable.

8.14.4.4 No Action

This option will maintain the status quo and would be inconsistent with the measures taken by the states as mandated under the Commission's Plan. Federal permit holders with state licenses would be required to abide by the more restrictive state regulations but that would be dependent upon whether the states have complied with the Plan and have implemented and are enforcing the measures. Area 2 and 3 permit holders would face potential inconsistencies in the implementation of ownership caps and active trap cap reductions, which would likely cause confusion for harvesters and enforcement, resulting in an ineffective management program. All Federal permit holders would be required to comply with their state's reporting requirements, which are not completely consistent in the fields collected, which would complicate state and Federal assessment and management efforts. The inconsistency could compromise the effectiveness of the Commission's measures in ensuring the sustainability of lobster fishery.

8.14.5 Determination of Significance

The Preferred Alternatives are not predicted to have an adverse impact on fishing vessels, purchasers of seafood products, ports, recreational anglers, and operators of party/charter businesses in excess of $100 million. While the value of the American lobster fishery peaked in 2016 at $670 million, the preferred action for Areas 2 and 3 place future ownership limits on the fishery. Because these preferred alternatives allow entities who exceed these ownership limits to maintain their permits/traps but not acquire any additional traps, minimal economic impacts are expected. Mandatory electronic harvester reporting is already required by approximately half of the lobster fishery. The remaining half of permit holders will be newly required to submit reports. Applications have been developed by NOAA Fisheries, as well as other, developers, for use on cellular telephones and tablets. While devices may cost between $0-200, and monthly wireless carrier fees may reach up to $50 per month, these devices are ubiquitous in society for personal use, making these costs effectively discountable. Because of this, the combined estimated impact of proposed federal action is expected to be far less than $100 million on an annual basis and would not be considered a significant action for purposes of E.O. 12866.

8.15 E.O. 13211

E.O. 13211, which became effective on May 18, 2001, addresses "actions concerning regulations that significantly affect Energy supply, distribution, or use". To the extent permitted by law, an agency is obligated to prepare a Statement of Energy Effects for those matters identified as a significant energy action. According to E.O. 13211, "significant energy action" means "any action by an agency that promulgates or is expected to lead to the promulgation of a final rule or regulation: (1) That is a significant regulatory action under E.O. 12866 or any successor order, and; (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy. Based on these criteria, the proposed regulatory actions identified in this EA do not require a Statement of Energy Effects, since these regulatory actions are not likely to have a significant adverse effect on the supply, distribution, or use of energy.

8.16 E.O. 12898 (Environmental Justice)

E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations provides guidelines to ensure that potential impacts on these populations are identified and mitigated, and that these populations can participate effectively in the NEPA process (E.O. 12898 1994). NOAA guidance NAO 216-6A, Companion Manual, Section 10(A) requires the consideration of E.O. 12898 in NEPA documents. Agencies should also encourage public participation, especially by affected communities, during scoping, as part of a broader strategy to address environmental justice issues.

Minority and low-income individuals or populations must not be excluded from participation in, denied the benefits of, or subjected to discrimination because of their race, color, or national origin.

Although the impacts of this action may affect communities with environmental justice concerns, the proposed actions should not have disproportionately high effects on low income or minority populations. The proposed actions would apply to all participants in the affected area, regardless of minority status or income level. The existing demographic data on participants in the American lobster fishery (i.e., vessel owners, crew, dealers, processors, employees of supporting industries) do not allow identification of those who live below the poverty level or are racial or ethnic minorities. Thus, it is impossible to fully determine how the actions within this document may impact these population segments. The multiple opportunities for public comment during the development of this action provide an opportunity to identify issues that may be related to environmental justice, but none have been raised relative to this action. The public has never requested translations of documents pertinent to the American lobster fishery. For communities relevant to this action (Section 6.1.6), poverty and minority rate data (for 2020) at the state and county levels are in Figure 28.

With respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and (or) wildlife for subsistence. GARFO tracks these issues, but there are no federally recognized tribal agreements for subsistence fishing in New England federal waters.

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