FRAMEWORK ADJUSTMENT 12

TO THE

SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS

FISHERY MANAGEMENT PLAN

Includes Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Act Analysis

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Prepared by the
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in cooperation with
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1. Executive Summary

This framework action considers modifications to the dates of the commercial scup quota periods. The action alternatives described in this document are intended to help enable the commercial fishery more efficiently meet, but not exceed, the annual commercial quota.

Current management measures for the scup commercial quota periods include allocations of the annual quota among three quota periods, period-specific possession limits, and other measures. These regulations were first implemented in 1997 to prevent the annual commercial quota from being fully harvested early in the year and to address potential issues regarding equitable access to the fishery. Larger vessels typically harvest scup offshore during the winter months and smaller vessels harvest scup inshore during the summer. Without a system of seasonal quota allocation, in years with low quotas, larger vessels could potentially harvest the full annual quota early in the year, leaving no quota for smaller vessels fishing inshore in the summer. The quota period measures are intended to reduce the likelihood of this occurring.

This framework adjustment was initiated in response to requests from commercial fishery advisors and includes three alternatives regarding the dates of the quota periods. Commercial landings would still be restricted to the seasonal and annual quotas under all alternatives. The quotas are based on the best scientific information available and are intended to prevent overfishing and maintain the rebuilt status of the scup stock. As such, all alternatives are expected to have positive impacts on the scup stock by continuing to prevent overfishing. Slight differences in seasonal fishing effort are expected under each alternative. Due to these slight differences, the expected impacts of each alternative on scup, non-target species, human communities, protected species, and habitat differ slightly. The expected impacts are described in detail in section 7.

Under alternative 1 (the no action alternative), all measures associated with the quota periods would remain unchanged. Alternative 1 is expected to have positive impacts on scup and non-target species (section 7.1.1), mixed (i.e. both positive and negative) socioeconomic impacts (section 7.2.1), slight negative impacts on protected species (section 7.3.1), and neutral impacts on physical habitat (section 7.4.1; Table 1).

Alternative 2 is the preferred alternative. Under alternative 2, October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative (alternative 1). Alternative 2 would result in an increased commercial possession limit during the month of October, compared to the no action alternative. Landings would still be restricted to the period quotas and the annual commercial quota. The annual quota is based on the best available science and is intended to prevent overfishing. As such, alternative 2 is expected to have positive impacts on scup and non-target species (section 7.1.2); however, because fishing effort during October is expected to increase slightly under alternative 2, these positive impacts are expected to be slightly lesser in magnitude than the positive impacts of the no action alternative (alternative 1). Due to the expected slight increase in landings (and thus revenues), alternative 2

is expected to have slight positive socioeconomic impacts compared to the no action alternative (section 7.2.2). Due to the slight increase in fishing effort, it is expected to have slight negative impacts on protected species (section 7.3.2) and physical habitat (section 7.4.2; Table 1).

Alternative 3 includes three sub-alternatives. Under alternative 3.A, October would become part of the Winter II quota period (as opposed to the Summer period under the no action alternative; alternative 1) and May 1-15 would become part of the Winter I period (as opposed to the Summer period under the no action alternative). Under current regulations (50 CFR 648.123(a)(2)(iv)), in certain circumstances, landings during April 15-30 by state-only permit holders may be counted towards a state's Summer period allocation in years when the Winter I fishery closes before April 15. Under alternative 3.A, these regulations would remain unchanged. Alternatives 3.B and 3.C are identical to alternative 3.A, except in regard to these special quota counting procedures. Under alternative 3.B the dates of the quota periods would be modified as described for alternative 3.A and the quota counting procedures would be modified such that they could be used during up to four weeks prior to new the start of the Summer quota period (i.e. April 15-May 15, as opposed to April 15-30 under the no action alternative). Under alternative 3.C the quota period dates would be modified as previously described and the quota counting procedures would be modified such that they could be used during two weeks prior to the new start of the Summer quota period (i.e. May 1-15, as opposed to April 15-30 under the no action alternative). Alternative 3.C would also specify that these procedures could be used when the Winter I fishery closes prior to May 1 (rather than April 15 under current regulations).

Alternatives 3.A-3.C would result in an increased commercial scup possession limit during May 1-15 and during October, compared to the no action alternative (alternative 1). This is expected to lead to a slight increase in fishing effort for and landings of scup for six weeks each year. Landings would still be restricted to the quota period allocations and to the annual quota; therefore, alternatives 3.A-3.C are expected to have positive impacts on scup and non-target species (sections 7.1.3.1 - 7.1.3.3). Due to the expected slight increase in landings (and thus revenues), they are expected to have slight positive socioeconomic impacts (sections 7.2.3.1 - 7.2.3.3). Due to the slight increase in fishing effort, they are expected to have slight negative impacts on protected species (sections 7.3.3.1 - 7.3.3.3) and physical habitat (sections 7.4.3.1 - 7.4.3.3; Table 1) due to the slightly increased potential for interactions with fishing gear.

When comparing across alternatives, alternative 1 is expected to have the most positive impacts on scup and non-target species, followed be alternatives 2, 3.A, 3.C, and 3.B. Alternative 3.C is expected to have the most positive socioeconomic impacts, followed by alternatives 3.A, 3.B, 2, and 1. Alternative 3.C has the highest potential for negative impacts to protected species and habitat, followed by alternatives 3.A, 3.B, 2, and 1.

A description of the expected environmental impacts, as well as any cumulative impacts resulting from each of the alternatives considered in this document, are provided in section 7. The preferred alternative is not associated with significant impacts to the biological,

socioeconomic, or physical environment individually or in conjunction with other actions; therefore, a “Finding of No Significant Impact” is warranted.

Table 1: Summary of the expected impacts of the alternatives on managed species, human communities, protected species, and physical habitat. “0” indicates a neutral impact. “+” indicates a positive impact and “-” indicates a negative impact. “Sl” indicates a slight impact. “Mixed” refers to both positive and negative impacts.

Alternative	**Winter I** (50,000 lb possession limit)	**Summer** (state-specific possession limits, all <10,000 lb)	**Winter II** (at least 12,000 lb possession limit, depending on Winter I quota rollover)	**Expected Impacts**			
				Scup & Non-Target Species	**Socio-economic**	**Protected Species**	**Habitat**
1: No Action	Jan. 1 – Apr. 30 (120 days)	May 1 – Oct. 31 (184 days)	Nov. 1 – Dec. 31 (61 days)	+	Mixed	Sl-	0
2: Move October to Winter II (preferred)	Jan. 1 – Apr. 30 (120 days)	May 1 – Sept. 30 (153 days)	Oct. 1 – Dec. 31 (92 days)	+	Sl+	Sl-	Sl-
3.A: Move October to Winter II & May 1-15 to Winter I; No Changes to Quota Counting Procedures	Jan. 1 – May 15 (135 days)	May 16 – Sept. 30 (138 days)	Oct. 1 – Dec. 31 (92 days)	+	Sl+	Sl-	Sl-
3.B: Move October to Winter II & May 1-15 to Winter I; Modify End Dates of Special Quota Counting Procedures				+	Sl+	Sl-	Sl-
3.C: Move October to Winter II & May 1-15 to Winter I; Modify Beginning & End Dates of Special Quota Counting Procedures				+	Sl+	Sl-	Sl-

2. List of Acronyms and Abbreviations

ACL	Annual Catch Limit
AM	Accountability Measure
AP	Advisory Panel
ASMFC	Atlantic States Marine Fisheries Commission
Board	The ASMFC's Summer Flounder, Scup, and Black Sea Bass Management Board
CEQ	Council on Environmental Quality
Commission	Atlantic States Marine Fisheries Commission
Council	Mid-Atlantic Fishery Management Council
CPUE	Catch Per Unit Effort
CS	Consumer Surplus
DPS	Distinct Population Segment
DPSWG	Data Poor Stocks Working Group
EFH	Essential Fish Habitat
EMU	Ecological Marine Unit
EO	Executive Order
ESA	Endangered Species Act
F	Fishing Mortality
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
GARFO	NMFS Greater Atlantic Regional Fisheries Office
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEAMAP	Northeast Area Assessment and Monitoring Program
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
PBR	Potential Biological Removal
PRA	Paperwork reduction Act
PS	Producer Surplus
RFA	Regulatory Flexibility Act
RI DEM	Rhode Island Department of Environmental Management
RIR	Regulatory Impact Review
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Work Group
URI GSO	University of Rhode Island Graduate School of Oceanography
USFWS	United States Fish and Wildlife Service
VEC	Valued Ecosystem Component

3. Contents, Tables, and Figures

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4. Introduction and Background

4.1. Purpose and Need

The purpose of this framework action is to consider modifications to the dates of the commercial scup quota periods. This action is needed to help enable the commercial fishery more efficiently meet, but not exceed, the annual commercial quota.

4.2. Background and History of Scup Quota Periods

The Mid-Atlantic Fishery Management Council (the Council) and the Atlantic States Marine Fisheries Commission (the Commission) cooperatively manage commercial and recreational scup fisheries under the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). The management unit for the FMP includes scup in U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina northward. The Council develops recommendations for regulations in Federal waters. The National Marine Fisheries Service (NMFS) reviews these regulations and implements them if they are deemed to be consistent with FMP objectives and other statutory requirements, including the Magnuson-Stevens Fishery Conservation and Management Act (MSA). NMFS also serves as the Federal enforcement agency. The Commission works with member states to develop regulations for state waters.

Amendment 8 to the FMP was approved by NMFS in 1996 and established several coastwide management measures for the scup fishery. At the time, the scup stock was overexploited. Amendment 8 included several measures to rebuild the stock, including a coastwide commercial quota, which became effective on January 1, 1997. During development of Amendment 8, the Council and Commission considered, but did not fully develop, a system of quota allocation and possession limits. They submitted Amendment 8 to NMFS before fully developing these measures so the other measures in Amendment 8 could be implemented as quickly as possible and the rebuilding program could begin. However, without trip limits and seasonal allocations, the annual quota could be fully harvested early in the year, which could have economic implications for the entire fishery and could lead to issues regarding equitable access to the fishery. Larger vessels tend to harvest scup offshore during the winter months and smaller vessels tend to harvest scup inshore during the summer. If larger vessels were to harvest the full annual quota early in the year, smaller vessels would not be able to harvest scup in the summer. To address this issue, the Council and Commission developed three seasonal quota periods, each allocated a percentage of the annual commercial quota and each with different possession limits. These measures were first implemented in 1997 through a regulatory amendment to the FMP (MAFMC 1996; 62 *Federal Register* 27978, May 22, 1997).

The Council and Commission have not modified the dates of the quota periods or the allocation percentages since they were first implemented. These measures include a Winter I period from January 1 through April 30, which is allocated 45.11% of the annual quota; a Summer period from May 1 through October 31, which is allocated 38.95% of the annual quota; and a Winter II quota period from November 1 through December 31, which is allocated 15.94% of the annual commercial quota (Table 2). The Summer period quota is further divided into state shares (Table 3) which are managed by the Commission (ASMFC 2002).

Commercial landings data from 1983 through 1992 were used to define the dates and allocations for the quota periods, including the state allocations for the Summer period. These years were thought to best represent historical participation in the fishery and included years when scup were abundant (though they have become far more abundant since then; NEFSC 2015b) and available to both northern and southern states (MAFMC 1996). There was some concern that these data underestimated harvests from state waters with some gear types, especially in Massachusetts. To address this concern, the state summer shares were modified in 2002 through Addendum V to the Commission's FMP (ASMFC 2002).

The Council and Commission have modified the seasonal possession limits several times since they were first implemented. Current regulations include a 50,000 pound possession limit during Winter I. If 80% of the Winter I quota is harvested, the possession limit drops to 1,000 pounds for the remainder of the Winter I period. The initial Winter II possession limit is 12,000 pounds. If the Winter I quota is not fully harvested, unused quota may rollover to the Winter II period. If this occurs, NMFS may increase the Winter II possession limit by 1,500 pounds for every 500,000 pounds of quota transferred from Winter I. There are no Federal waters possession limits during the Summer period; however, various state-specific possession limits are enforced in state waters. These possession limits are all much lower than the Federal Winter I and Winter II possession limits (Table 4).

The Federal commercial scup fishery is closed coastwide when the allocation for a given quota period is landed. Any overages during a given quota period are subtracted from that period's allocation for the following year. If the Summer period quota is exceeded, the Commission subtracts overages from a future year's Summer period share for the states which had overages. If an individual state exceeds its Summer quota, but the overall Summer quota is not exceeded, deductions are not applied.

Framework Adjustment 3 to the FMP, implemented in 2003, resulted in new Federal regulations (50 CFR 648.123(a)(2)(iv)) which state: "During a fishing year in which the Winter I quota period is closed prior to April 15, a state may apply to the [NMFS] Regional Administrator for authorization to count scup landed for sale in that state from April 15 through April 30 by state-only permitted vessels fishing exclusively in waters under the jurisdiction of that state against the Summer period quota. Requests to the Regional Administrator to count scup landings in a state from April 15 through April 30 against the Summer period quota must be made by letter signed by the principal state official with marine fishery management responsibility and expertise, or his/her designee, and must be received by the Regional Administrator no later than April 15" (68 *Federal Register* 62251, November 3, 2003).

Scup are occasionally available in state waters prior to the beginning of the Summer period (i.e. May 1). If the Winter I quota were to be fully harvested before the end of the period, these regulations would allow landings from state-only permit holders fishing in state waters during April 15-30 to count towards the Summer quota. Otherwise, landings during April 15-30 would count towards the Winter I quota and could result in a reduction in the Winter I quota in a

following year, as required by accountability measures in the FMP. Federally-permitted vessels would be prohibited from landing scup during April 15-30, even if those scup were caught in state waters. These regulations were intended to increase the efficiency of the fishery, while still restricting landings to the Summer period quota (MAFMC 2003). Since Framework 3 was implemented in 2003, the Winter I period has not closed prematurely; thus, these special quota counting provisions have never been used.

The scup stock was declared rebuilt in 2009 based on the findings of a new stock assessment (DPSWG 2009). The commercial scup quota nearly doubled between 2010 and 2011 in response to this new assessment information. The commercial fishery has not exceeded the annual commercial quota or any of the period quotas since that time. Prior to 2011, the Winter I quota was exceeded three times by an average of 30%, the Summer quota was exceeded five times by an average of 33%, and the Winter II quota was exceeded seven times by an average of 24% (Table 5, Figure 1).

Over 2011-2016 commercial landings were 20-47% below the commercial quota (Table 5). Some members of the Council and Commission's Summer Flounder, Scup, and Black Sea Bass Advisory Panels (APs) have argued that the restrictive possession limits during the Summer period (Table 4), compared to the Winter I and Winter II periods (Table 2), prevent fishermen from landing high volumes of scup when they are available. These restrictions limit the ability of the fishery to achieve the annual commercial quota and can thus result in foregone yield. The action alternatives described in the next section were suggested by AP members and would both increase the amount of time each year that the Winter I and/or Winter II possession limits are in effect.

Table 2: Commercial scup quota period dates, percentage of annual quota allocated, and Federal waters possession limits.

Quota Period	Dates	% of annual quota	Possession limit
Winter I	Jan 1–Apr 30	45.11%	50,000 pounds
Summer	May 1–Oct 31	38.95%	State-specific (Table 4)
Winter II	Nov 1–Dec 31	15.94%	At least 12,000 pounds, depending on amount of unused quota transferred from Winter I

Table 3: State allocations of commercial scup quota for the Summer quota period.

State	Share of summer quota
Maine	0.1210%
New Hampshire	0.0000%
Massachusetts	21.5853%
Rhode Island	56.1894%
Connecticut	3.1537%
New York	15.8232%
New Jersey	2.9164%
Delaware	0.0000%
Maryland	0.0119%
Virginia	0.1650%
North Carolina	0.0249%

Table 4: Commercial scup possession limits for trawl vessels in state waters during the Summer quota period (May 1 – October 31) in 2016.

State	Dates	Possession limit
Maine	May 1 – Oct 31	None
New Hampshire	May 1 – Oct 31	None (allocated no quota)
Massachusetts	May 1 – Oct 31	800 lb
Rhode Island	May 1 – Oct 31	10,000 lb per vessel per week
Connecticut	May 1 – July 2	1,500 lb
	July 3 – November 1	750 lb
New York	May 1 – Oct 31	800 lb
New Jersey	May 1 – Oct 31	5,000 lb
Delaware	May 1 – Oct 31	None (allocated no quota)
Maryland	May 1 – Oct 31	None
Virginia	May 1 – Oct 31	None
North Carolina	May 1 – Oct 31	None

Table 5: Commercial scup landings, commercial period and annual quotas, and quota overages/underages, 1997-2016. [1]

Year	Period	Landings	Quota	Overage/Underage
1997	Winter I	2,069,495	2,706,600	-24%
	Summer	2,185,950	2,337,000	-6%
	Winter II	567,461	956,400	-41%
	Total	4,822,906	6,000,000	-20%
1998	Winter I	1,869,765	2,061,527	-9%
	Summer	1,503,525	1,780,015	-16%
	Winter II	806,511	728,458	+11%
	Total	4,179,801	4,570,000	-9%
1999	Winter I	1,244,642	1,141,283	+9%
	Summer	1,336,056	985,435	+36%
	Winter II	737,527	403,282	+83%
	Total	3,318,225	2,530,000	+31%
2000	Winter I	1,384,252	789,425	+75%
	Summer	1,241,515	681,625	+82%
	Winter II	34,726	278,950	-88%
	Total	2,660,493	1,750,000	+52%
2001	Winter I	1,669,765	1,578,850	+6%
	Summer	1,619,940	1,363,250	+19%
	Winter II	777,791	557,900	+39%
	Total	4,067,496	3,500,000	+16%
2002	Winter I	3,200,636	3,270,475	-2%
	Summer	2,945,435	2,823,875	+4%
	Winter II	1,135,789	1,155,650	-2%
	Total	7,281,860	7,250,000	0%
2003	Winter I	3,737,539	5,458,310	-32%
	Summer	4,456,786	4,712,950	-5%
	Winter II	1,698,329	1,928,740	-12%
	Total	9,892,654	12,100,000	-18%
2004	Winter I	3,636,847	5,566,574	-35%
	Summer	4,062,107	4,806,430	-15%
	Winter II	1,618,150	1,966,996	-18%
	Total	9,317,104	12,340,000	-24%
2005	Winter I	3,684,690	5,516,953	-33%
	Summer	4,264,400	4,763,585	-10%
	Winter II	1,454,989	1,949,462	-25%
	Total	9,404,079	12,230,000	-23%

[1] Quotas may differ from those published in the Federal Register by small amounts due to conversions between metric tons and pounds.

Table 5, continued.

Year	Period	Landings	Quota	Overage/Underage
2006	Winter I	3,618,623	5,381,623	-33%
	Summer	3,220,954	4,646,735	-31%
	Winter II	2,115,468	1,901,642	+11%
	Total	8,955,045	11,930,000	-25%
2007	Winter I	3,400,939	4,014,790	-15%
	Summer	4,254,996	3,466,550	+23%
	Winter II	1,590,755	1,418,660	+12%
	Total	9,246,690	8,900,000	+4%
2008	Winter I	2,359,245	2,363,764	0%
	Summer	1,933,254	2,040,980	-5%
	Winter II	894,145	835,256	7%
	Total	5,186,644	5,240,000	-1%
2009	Winter I	3,774,596	3,775,707	0%
	Summer	3,072,660	3,260,115	-6%
	Winter II	1,356,972	1,334,178	2%
	Total	8,204,228	8,370,000	-2%
2010	Winter I	4,740,690	4,817,748	-2%
	Summer	4,175,259	4,159,860	0%
	Winter II	1,482,673	1,702,392	-13%
	Total	10,398,622	10,680,000	-3%
2011	Winter I	5,806,236	9,184,396	-37%
	Summer	6,642,296	7,930,220	-16%
	Winter II	2,583,514	3,245,384	-20%
	Total	15,032,046	20,360,000	-26%
2012	Winter I	5,435,576	12,590,201	-57%
	Summer	6,762,839	10,870,945	-38%
	Winter II	2,685,725	4,448,854	-40%
	Total	14,884,140	27,910,000	-47%
2013	Winter I	7,526,881	10,614,383	-29%
	Summer	8,215,177	9,164,935	-10%
	Winter II	2,131,981	3,750,682	-43%
	Total	17,874,039	23,530,000	-24%
2014	Winter I	6,238,586	9,901,645	-37%
	Summer	7,543,741	8,549,525	-12%
	Winter II	2,181,849	3,498,830	-38%
	Total	15,964,176	21,950,000	-27%
2015	Winter I	7,470,126	9,576,853	-22%
	Summer	7,414,606	8,269,085	-10%
	Winter II	2,145,234	3,498,830	-39%
	Total	17,029,966	21,950,000	-22%

Table 5, continued.

Year	Period	Landings	Quota	Overage/Underage
2016	Winter I	6,108,240	9,234,017	-34%
	Summer	7,258,884	7,973,065	-9%
	Winter II	2,389,956	3,262,918	-27%
	Total	15,757,080	20,470,000	-23%

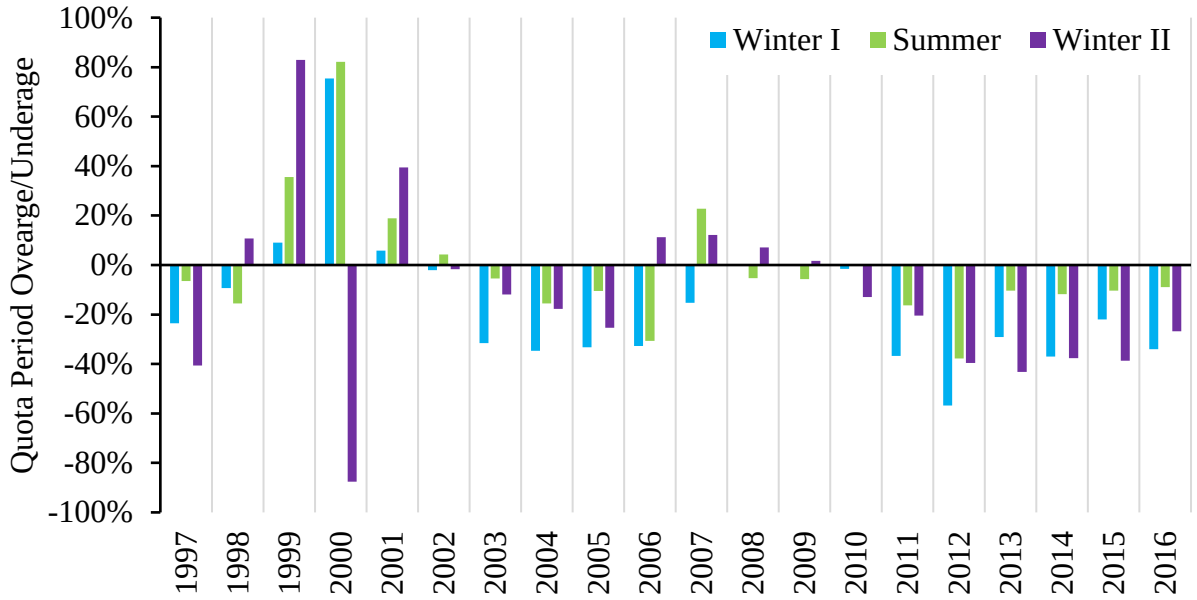

Figure 1: Commercial scup landings by quota period, shown as percent above (overage) or below (underage) the period quota, 1997-2016, Maine through North Carolina.

5. Management Alternatives

The following sections describe the management alternatives considered by the Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (the Board). The action alternatives (i.e. alternatives 2 and 3.A-3.C) include changes to the dates of the quota periods. These dates are included in both the Council and Commission FMPs; therefore, the Commission developed a complementary addendum (addendum XXIX).

The Council and Board did not consider alternatives relative to other aspects of the commercial quota periods such as the quota period allocations, possession limits, or quota rollover provisions. The action alternatives were initially recommended by commercial fishing industry advisors and are intended to help the fishery achieve (but not exceed) the annual commercial quota. No other changes were considered because the proposed changes to the dates of the quota periods were deemed sufficient to address this objective.

5.1. Alternative 1: No Action

Under alternative 1, the Council and Board would take no action and all measures associated with the commercial scup quota periods would remain unchanged. These measures are described in section 4.2.

5.2. Alternative 2: Move October to the Winter II Quota Period (Preferred)

Alternative 2 is the preferred alternative. Under alternative 2, October would become part of the Winter II quota period. The Summer period would last from May 1 – September 30 and would be 31 days shorter than under the no action alternative (alternative 1). The Winter II period would last from October 1 through December 31 and would be 31 days longer than under the no action alternative. The allocations of quota among the periods, the quota rollover provisions, the possession limits, and the state allocations of the Summer quota (managed by the Commission) would remain unchanged (Table 2 - Table 4). The dates of the Winter I period would remain unchanged.

This alternative was proposed by AP members. They recommended this change because it would increase the possession limit during the month of October (Table 2 and Table 4). They argued that this change would lead to increased landings and would help the fishery to reach the annual commercial quota. As previously stated, over 2011-2016 commercial landings were 20-47% below the commercial quota (Table 5).

5.3. Alternative Set 3: Move May 1-15 to the Winter I Quota Period and Move October to the Winter II Quota Period

Alternative 3 contains three sub-alternatives (i.e. alternatives 3.A - 3.C), which are described in the following sections.

5.3.1. Alternative 3.A: Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Take No Action on Winter I and Summer Quota Counting Procedures

Under alternative 3.A, May 1-15 would become part of the Winter I quota period and October would become part of the Winter II period. The Winter I period would last from January 1 through May 15 and would be 15 days longer than under the no action alternative (alternative 1). The Summer period would last from May 16 through September 30 and would be 46 days shorter than under the no action alternative. The Winter II period would last from October 1 through December 31 and would be 31 days longer than under the no action alternative.

Like alternative 2, this modification was proposed by AP members. They recommended this change because it would increase the possession limit for six weeks out of the year (Table 2 and Table 4). They argued that this change would lead to increased landings and would help the fishery to reach the annual commercial quota. As previously stated, over 2011-2016 commercial landings were 20-47% below the commercial quota (Table 5).

Additionally, under alternative 3.A, the regulations which allow for landings by state-only permit holders during April 15-30 to count towards the Summer quota in certain circumstances would

remain unchanged (described in more detail in section 4.2 and 50 CFR 648.123(a)(2)(iv)). This could result in circumstances in which the Winter I fishery could close by April 15 and state-permitted vessels could count landings during April 15-30 towards the Summer period quota. The commercial fishery would then close from May 1-15 for all permit holders (state and Federal) and would resume on May 16 (the new start of the Summer period under this alternative).

5.3.2. Alternative 3.B: Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the End Dates of the Winter I and Summer Quota Counting Procedures

Under alternative 3.B, the dates of the three quota periods would be modified as described for alternative 3.A and the regulations at 50 CFR 648.123(a)(2)(iv) (described in section 4.2) would be modified such that, in years when the Winter I period closes prior to April 15, landings by state-only permit holders fishing in state waters during April 15 – May 15 (rather than April 15–30 as in current regulations) could count towards the Summer period quota. This would increase the length of the period for this special quota counting procedure by two weeks. As stated in current regulations, states would need to submit a written request for use of this provision to the NMFS regional administrator prior to April 15. Thus, if the Winter I fishery were to close after April 15, but prior to May 16 (the new start of the Summer period under this alternative), this provision could not be used.

5.3.3. Alternative 3.C: Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the Beginning and End Dates of the Winter I and Summer Quota Counting Procedures

Under alternative 3.C, the dates of the three quota periods would be modified as described in section 5.3.1 and the regulations at 50 CFR 648.123(a)(2)(iv) (described in section 4.2) would be modified such that in years when the Winter I period closes prior to May 1, landings by state-only permit holders fishing in state waters during May 1-15 (rather than April 15–30 under current regulations) could count towards the Summer period quota. The regulations would also be modified such that states would have to request these special provisions by May 1, as opposed to April 15 under current regulations. If the Winter I fishery were to close after May 1, but prior to May 16 (the new start of the Summer period under this alternative), then this provision could not be used.

6. Description of the Affected Environment

The affected environment consists of those physical, biological, and human components of the environment expected to experience impacts if any of the actions considered through this framework adjustment were to be implemented. This document focuses on four aspects of the affected environment, which are defined as valued ecosystem components (VECs).

The VECs include:

- Scup and non-target species caught in scup fisheries
- Human communities
- Protected species
- Physical habitat

The following sections describe the recent condition of the VECs.

6.1. Scup and Non-Target Species

6.1.1. Scup

Scup are a schooling, demersal (i.e. bottom-dwelling) species. They are found in a variety of habitats in the Mid-Atlantic. Essential fish habitat (EFH) for scup includes demersal waters, areas with sandy or muddy bottoms, mussel beds, and sea grass beds from the Gulf of Maine through Cape Hatteras, North Carolina.

Scup undertake extensive seasonal migrations between coastal and offshore waters. They are mostly found in estuaries and coastal waters during the warmer times of year. Larger individuals tend to arrive in inshore areas before smaller individuals. They move offshore and south, to outer continental shelf waters south of New Jersey during the cooler times of year (Steimle et al. 1999, NEFSC 2015b). These seasonal patterns are evident in the distribution of scup catch in the spring and fall NEFSC bottom trawl surveys (Figure 2 and Figure 3). During 2011-2015, the average bottom temperature at the spring survey stations (March – May) was about 7°C and scup were mostly caught offshore (Figure 3). Average bottom temperature during the fall survey (September – November) was about 10°C and scup tended to be caught much closer to shore than during the spring survey (Figure 2).

Other fisheries-independent trawl surveys in the region are more spatially restricted than the NEFSC trawl surveys but have better coverage of state waters. Data from several other trawl surveys were examined to assess the distribution of scup during May 1-15 and October, the times of year which may be impacted by the alternatives described in this document (section 5).[2] The northeast area assessment and monitoring program (NEAMAP), Rhode Island Department of Environmental Management (RI DEM), University of Rhode Island Graduate School of Oceanography (URI GSO), and Massachusetts Department of Marine Fisheries (MA DMF) surveys suggest that adult scup[3] are present in state and Federal waters during May 1-15 (Figure

[2] Scup catch during May 1-15 and October in some trawl surveys are not summarized in this document because those surveys either did not operate during May or October (i.e. MA DMF fall survey, Chesapeake Bay Multispecies Monitoring and Assessment Program [ChesMMAP] survey in October), caught very few or no scup during those months (i.e. NEFSC spring survey during May, New Jersey's Delaware Bay trawl survey), or only caught juvenile scup during those months (i.e. state of Delaware trawl survey, ChesMMAP survey in May).

[3] Adult scup were defined based on an average weight per scup per survey tow of at least 0.15 kg. This value is based on a length of 9-inches total length, which is the length at which nearly all scup are sexually mature (NEFSC 2015b) and is also the minimum size for retention in the commercial fishery. Total length was converted to fork

4 - Figure 10). The NEAMAP and NEFSC trawl surveys indicate that adult scup are present in state and Federal waters during October. The RI DEM, URI GSO, and New Jersey Ocean Trawl surveys indicate that scup are present in state and Federal waters during October, but that most are juveniles (Figure 11 - Figure 20).

Scup spawn once annually over weedy or sandy areas, mostly off southern New England. Spawning takes place from May through August and usually peaks in June and July (Steimle et al. 1999). About 50% of scup are sexually mature at two years of age and about 17 cm (7 inches) total length. They reach a maximum age of at least 14 years; however, few scup older than age 7 are caught in the Mid-Atlantic (DPSWG 2009, NEFSC 2015b).

Adult scup are benthic feeders. They consume a variety of prey, including small crustaceans, polychaetes, mollusks, small squid, vegetable detritus, insect larvae, hydroids, sand dollars, and small fish. Scup are prey for several predators, including sharks, skates, silver hake, bluefish, summer flounder, black sea bass, weakfish, lizardfish, king mackerel, and monkfish (Steimle et al. 1999).

The Council managed scup under a formal rebuilding plan from 2005 through 2009. NMFS declared the scup stock rebuilt in 2009 based on the findings of the Data Poor Stocks Working Group (DPSWG 2009).

The most recent scup benchmark stock assessment took place in 2015 and found that scup were not overfished and overfishing was not occurring in 2014. Spawning stock biomass was estimated to be about 210% of the target biomass. Fishing mortality in 2014 was estimated to be about 57% of the overfishing threshold (NEFSC 2015b). A recent stock assessment update reached similar conclusions, using data through 2016. In 2016, spawning stock biomass remained at about 210% of the target and fishing mortality on fully selected age 3 scup was about 63% of the overfishing reference point (NEFSC 2017).

length using the relationship described in Hamer (1979) and converted to kilograms using the length/weight relationship described in Morse (1978).

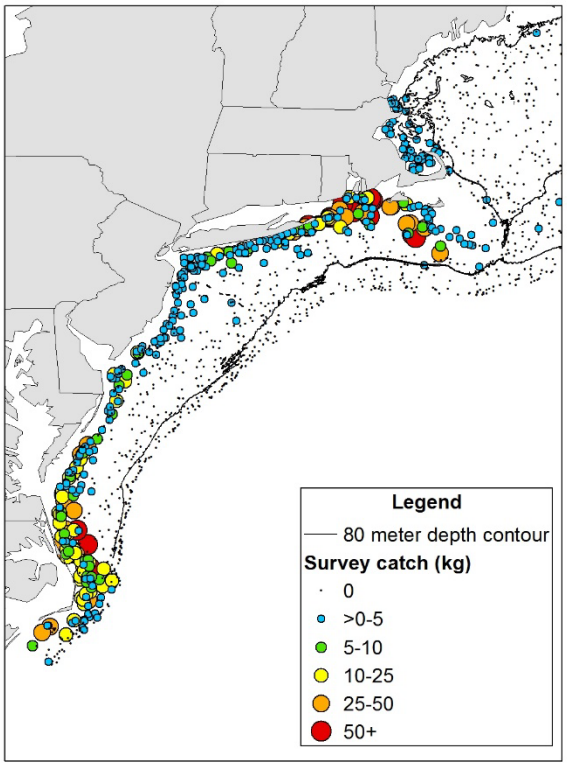

Figure 2: Scup catch in the NEFSC fall bottom trawl survey, 2011-2015.

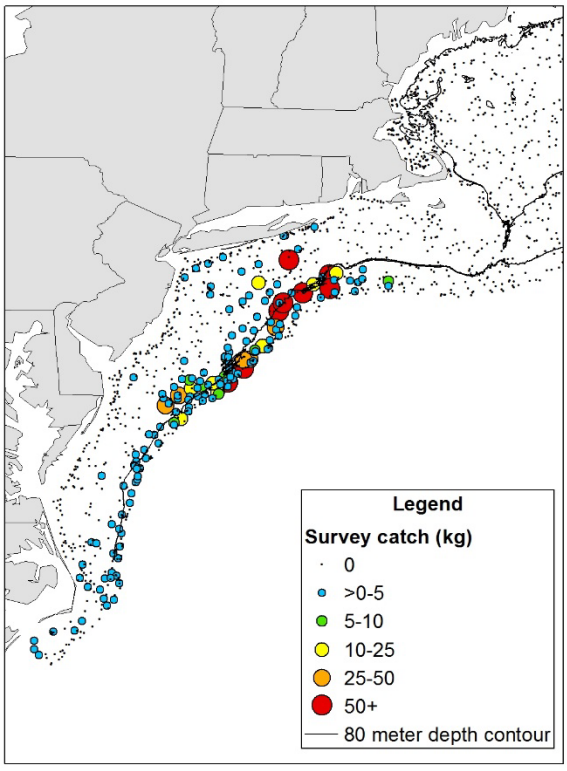

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Figure 3: Scup catch in the NEFSC spring bottom trawl survey, 2011-2015.

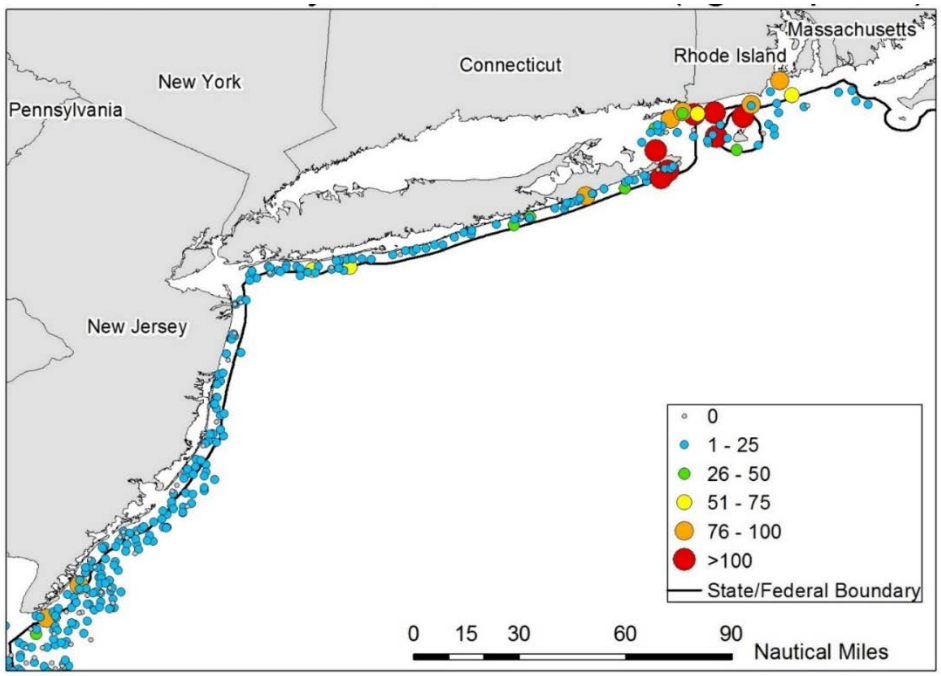

Figure 4: Scup catch per tow (in kg), May 1-15, 2011-2016, in the NEAMAP trawl survey off the states of Massachusetts through New Jersey.

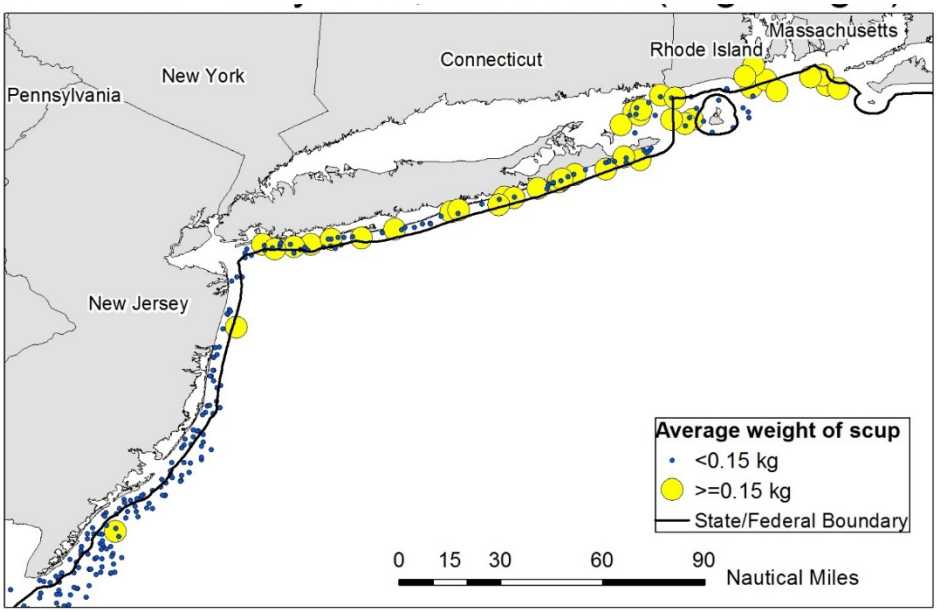

Figure 5: Average weight per scup in NEAMAP tows from Massachusetts through New Jersey, May 1-15, 2011-2016. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

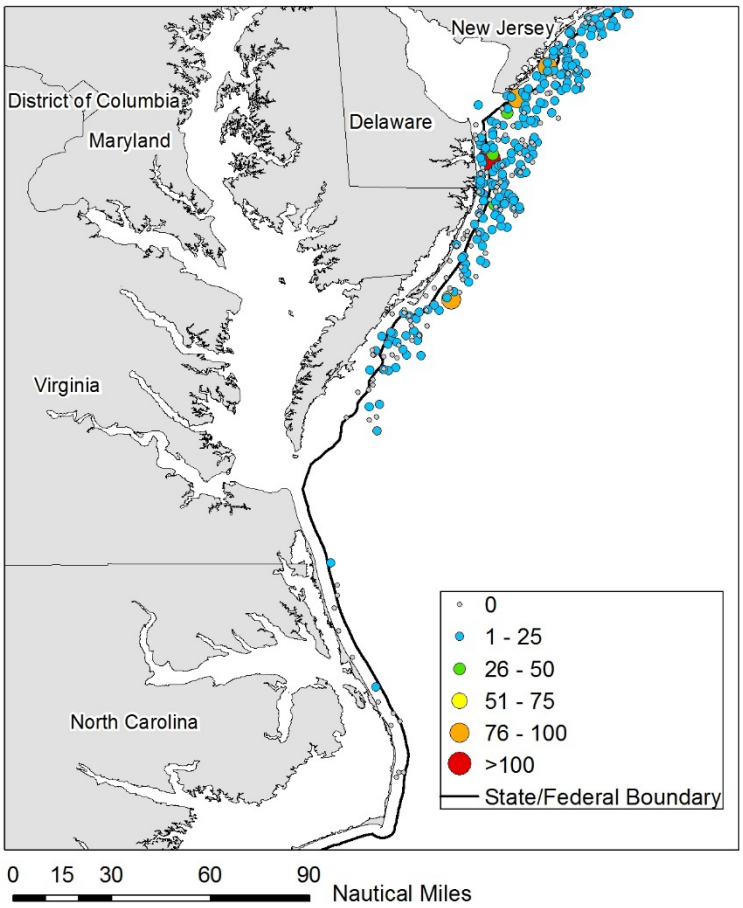

Figure 6: Scup catch per tow (in kg), May 1-15, 2011-2016, in the NEAMAP trawl survey off the states of Delaware through North Carolina. Average weight per scup is not shown in a separate figure as all average weights were below 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

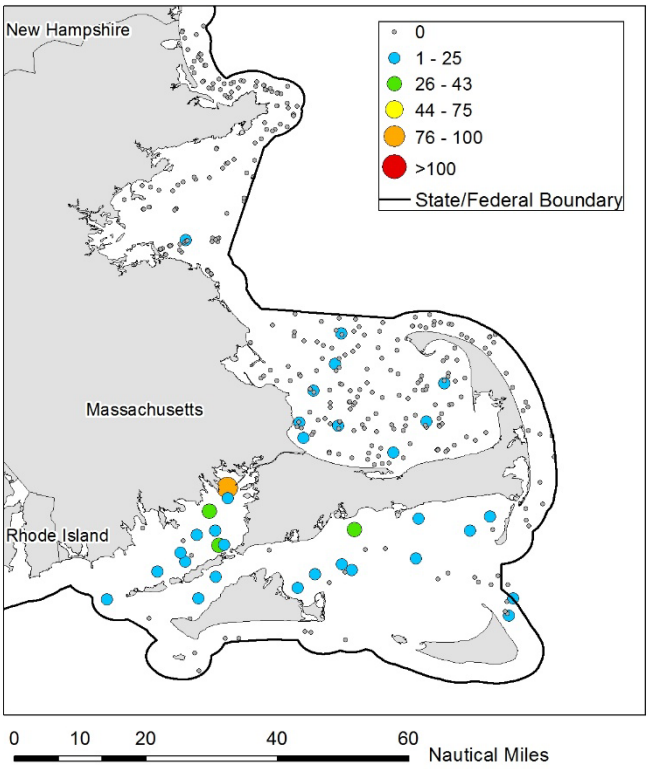

Figure 7: Scup catch per tow (in kg) in the MA DMF spring trawl survey, May 1 – 15, 2011-2016.

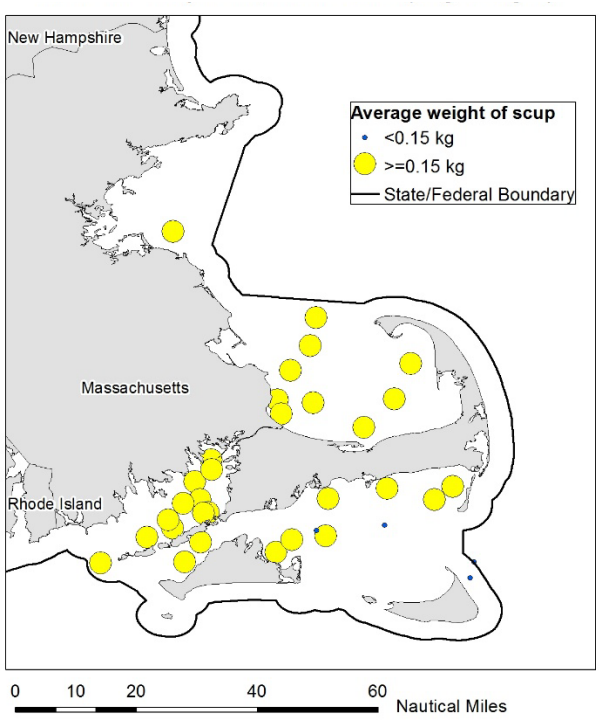

Figure 8: Average weight per scup in the MA DMF spring trawl survey, May 1 – 15, 2011-2016. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

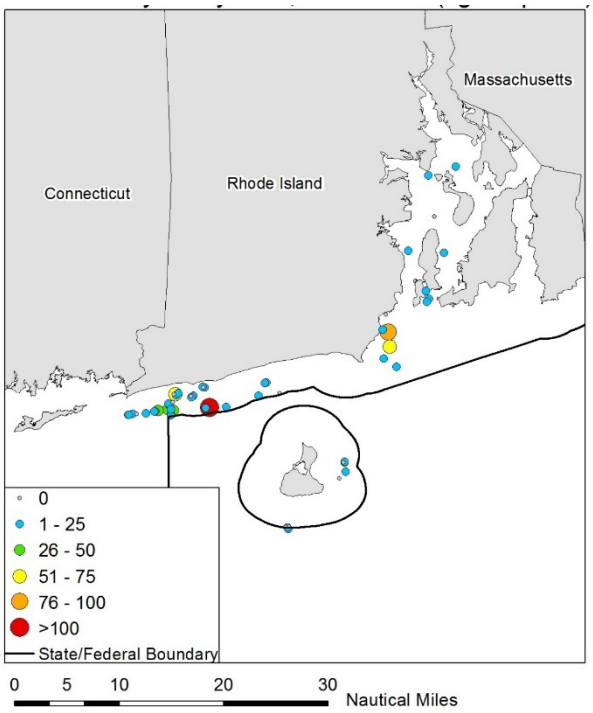

Figure 9: Scup catch per tow (in kg) in the RI DEM coastal fishery resource assessment trawl survey, May 1-15, 2011-2016.

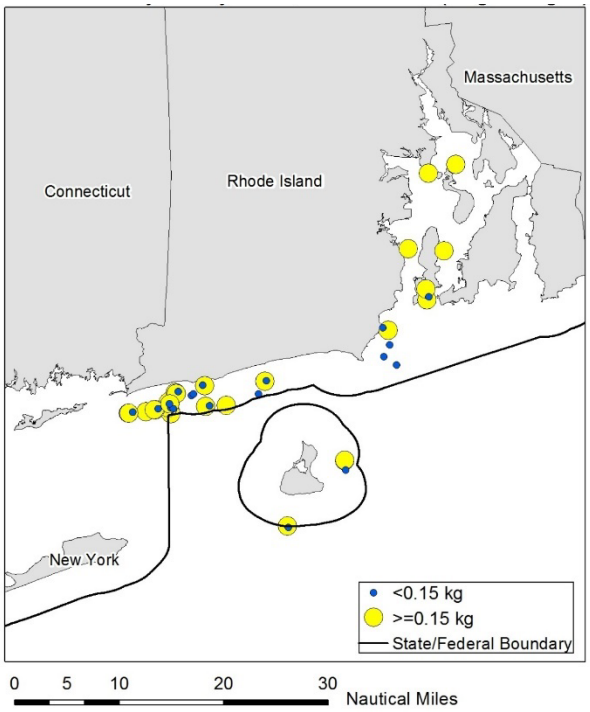

Figure 10: Average weight per scup in the RI DEM coastal fishery resource assessment trawl survey, May 1-15, 2011-2016. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

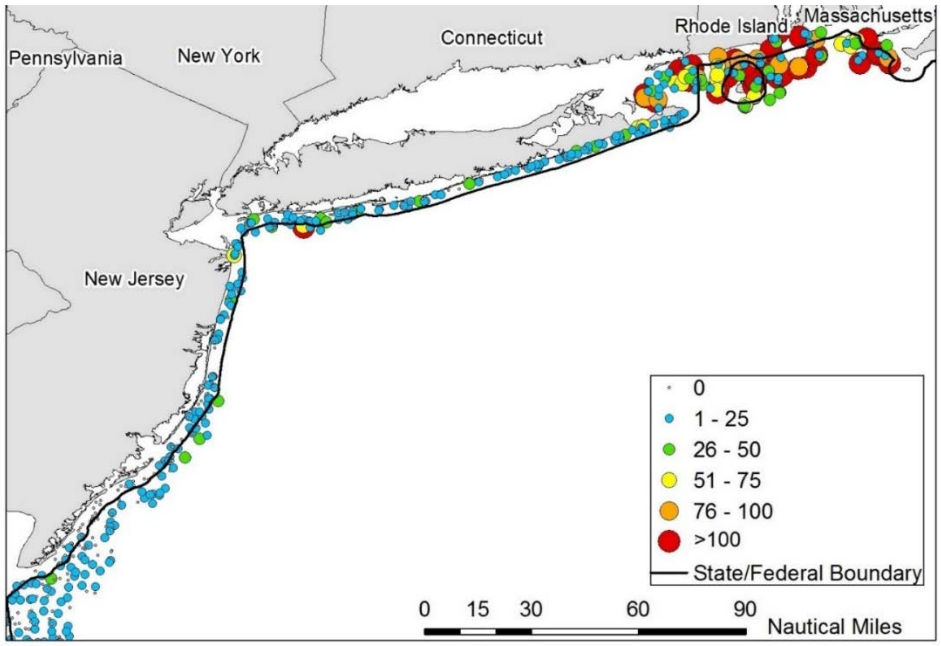

Figure 11: Scup catch per tow (in kg) in October, 2011-2016, in the NEAMAP trawl survey off the states of Massachusetts through New Jersey.

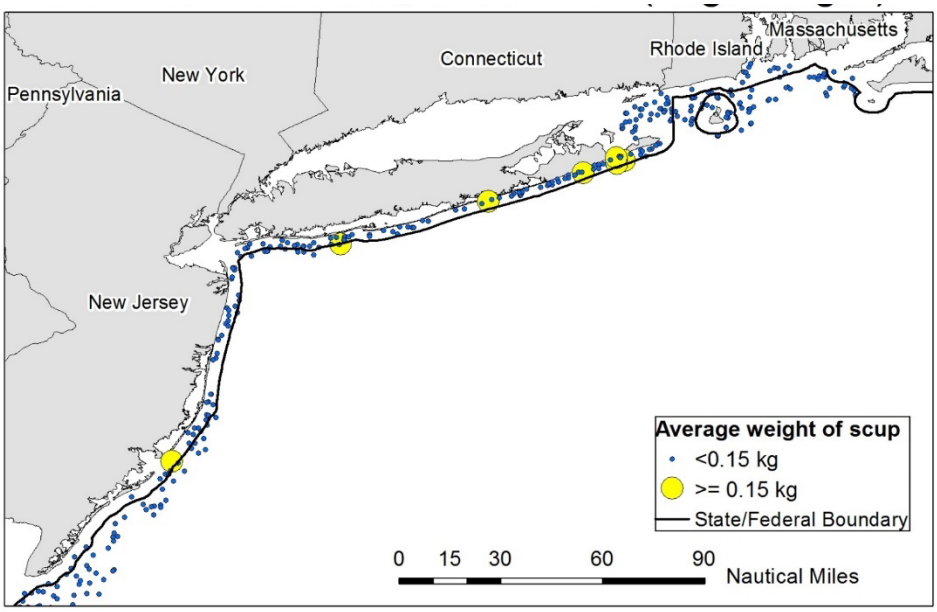

Figure 12: Average weight per scup in NEAMAP tows from Massachusetts through New Jersey, October, 2011-2016. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

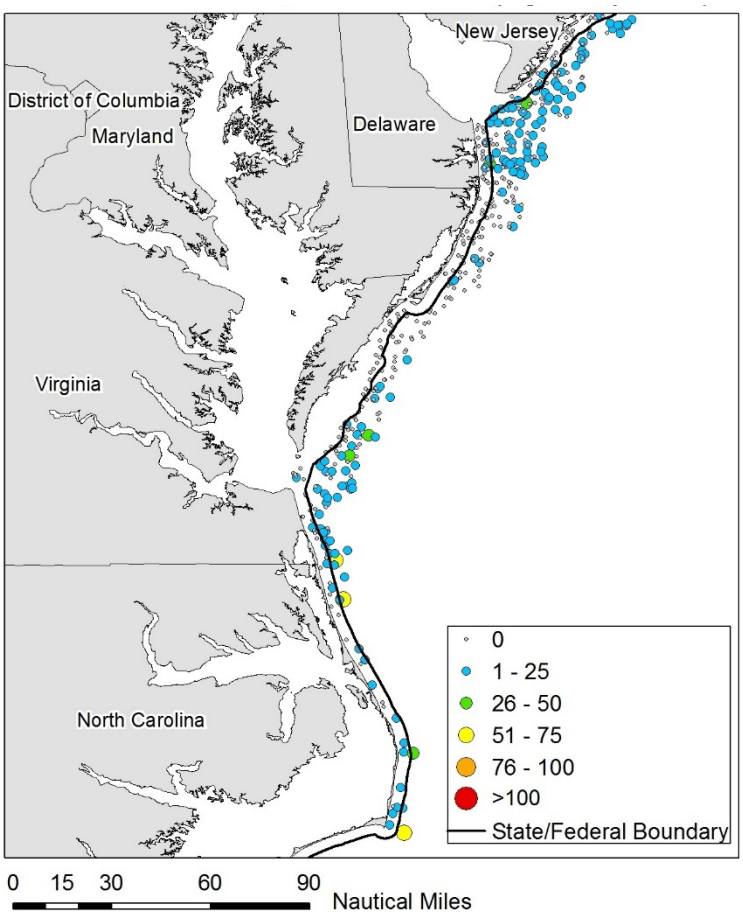

Figure 13: Scup catch per tow (in kg) in October, 2011-2016, in the NEAMAP trawl survey off the states of Delaware through North Carolina. Average weight per scup is not shown in a separate figure as all average weights were below 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

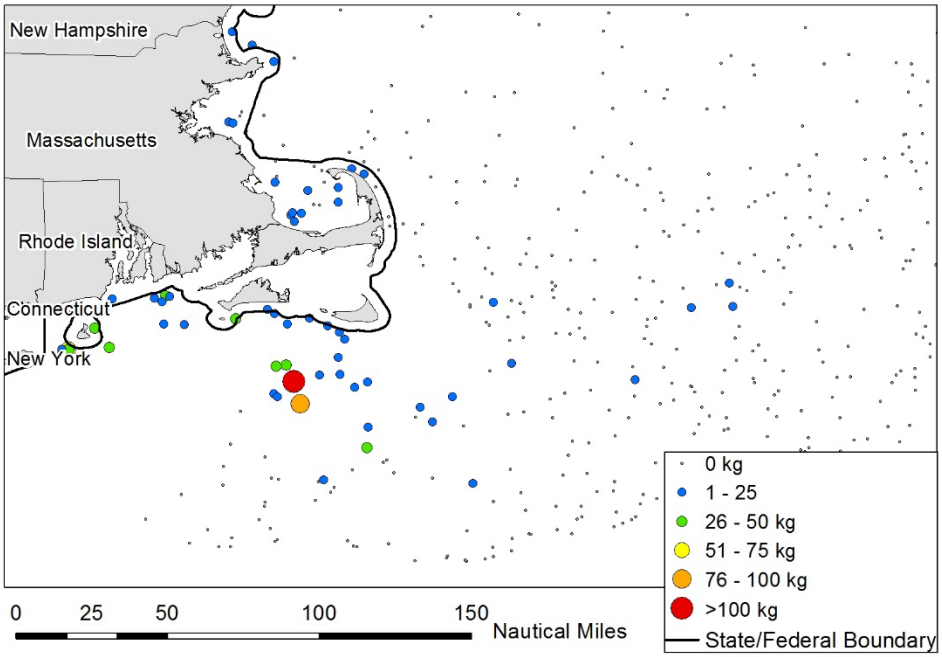

Figure 14: Scup catch per tow (in kg) in October, 2011-2015, in the NEFSC fall bottom trawl survey.

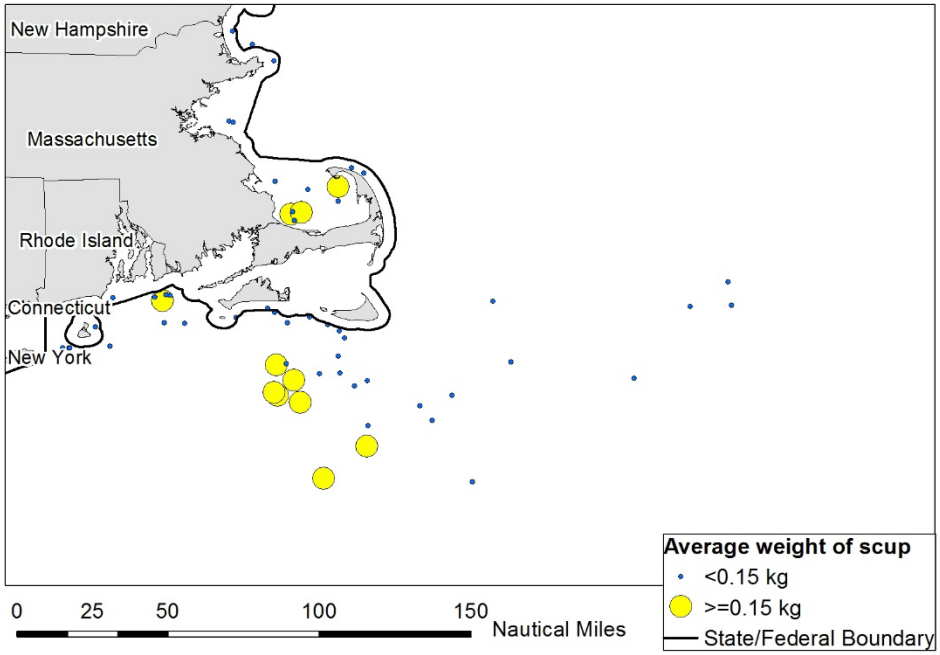

Figure 15: Average weight per scup in NEFSC fall bottom trawl survey tows, October, 2011-2015. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

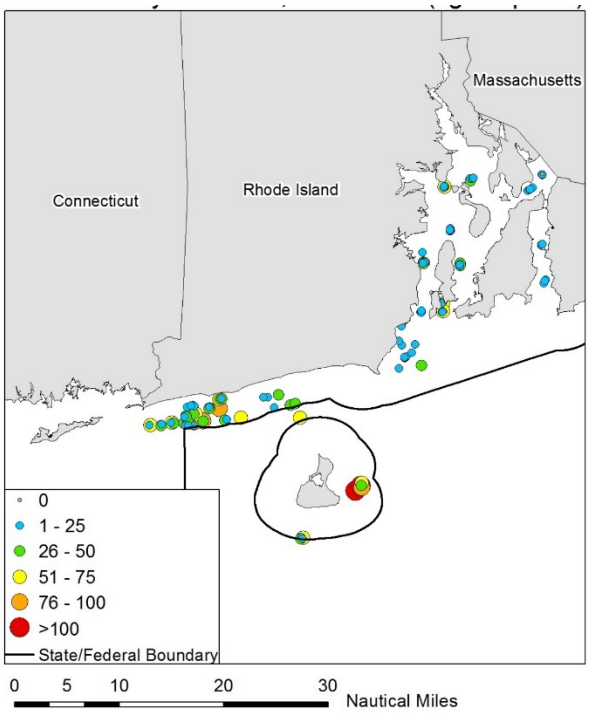

Figure 16: Scup catch per tow (in kg) in the RI DEM coastal fishery resource assessment trawl survey, during October, 2011-2016.

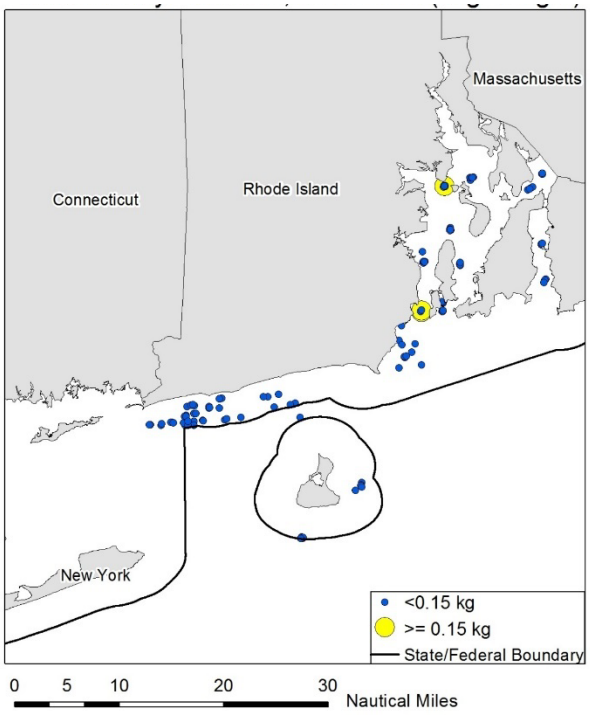

Figure 17: Average weight per scup in the RI DEM coastal fishery resource assessment trawl survey, October, 2011-2016. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

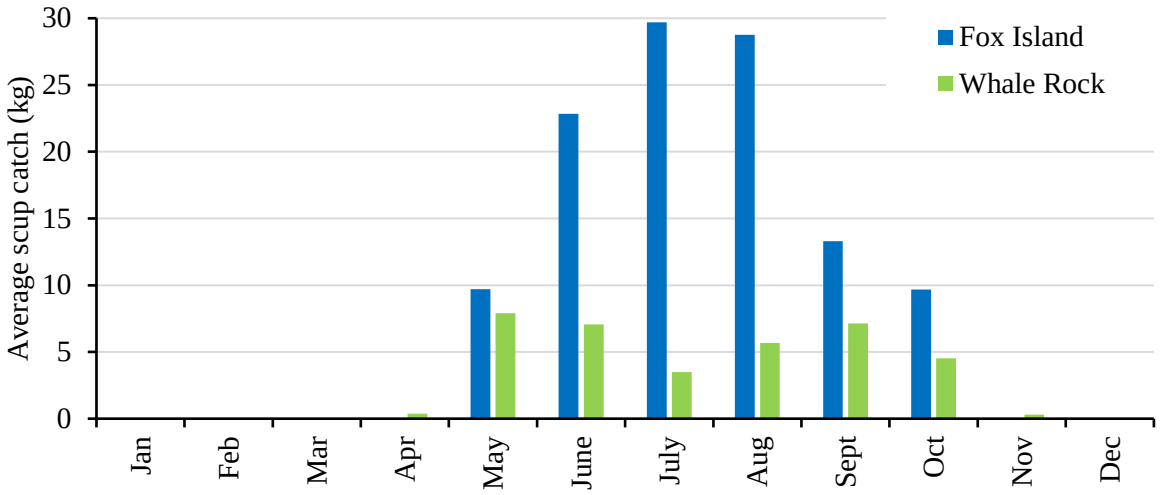

Figure 18: Average scup catch (in kg) by month in the URI GSO Narragansett Bay fish trawl survey, 2011-2015.

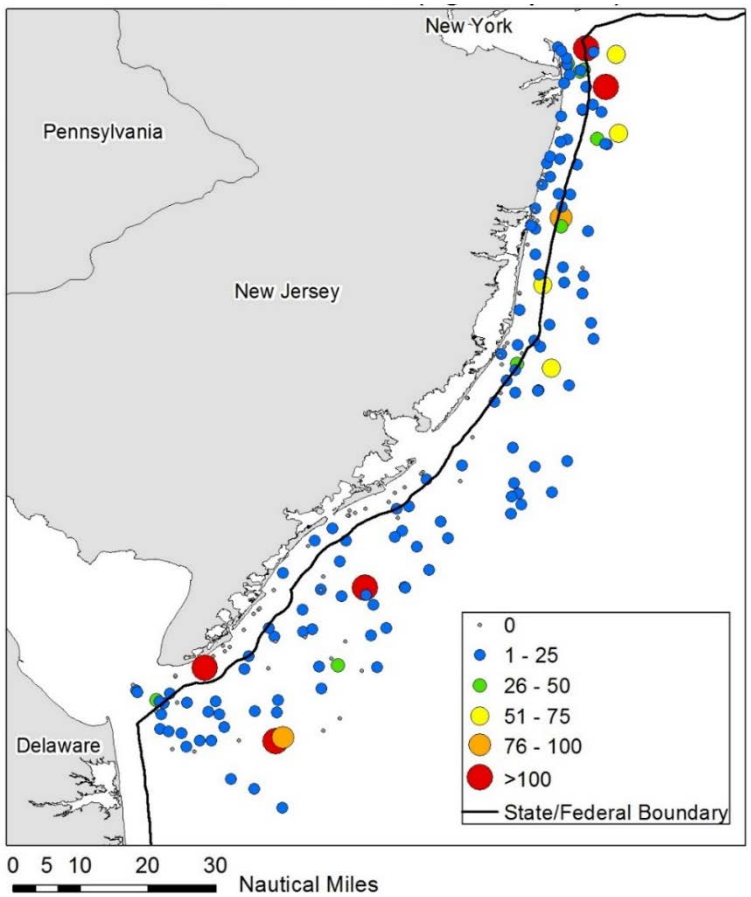

Figure 19: Scup catch per tow (in kg) in October, 2011-2015, in the New Jersey Ocean Trawl Survey.

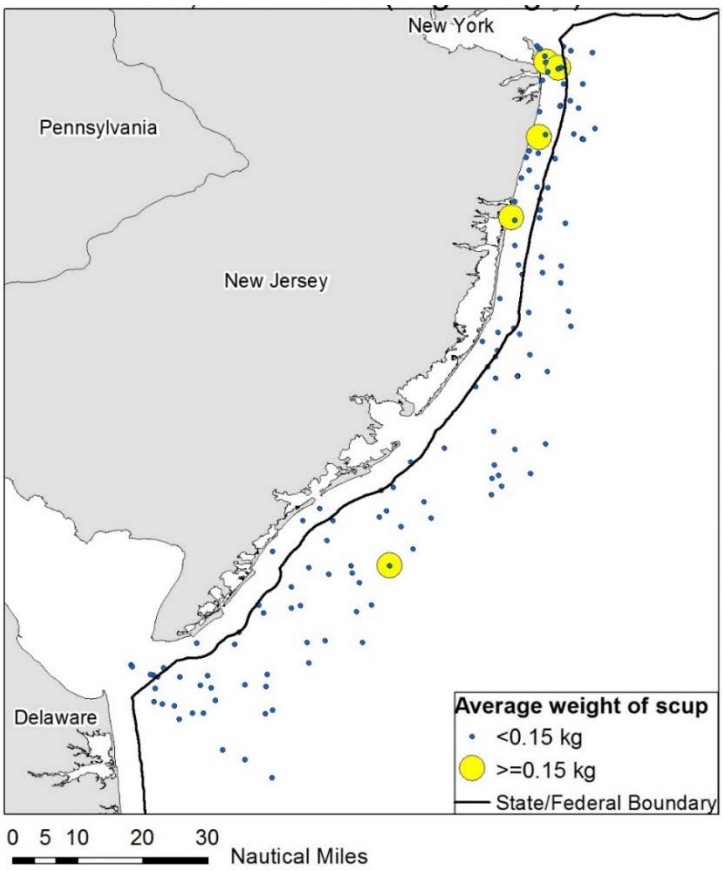

Figure 20: Average weight of scup caught in in the New Jersey Ocean Trawl Survey, October, 2011-2015. Average weights are shown as those less than 0.15 kg and those greater than or equal to 0.15 kg, which is approximately the weight of a scup that has reached the commercial minimum size of nine inches total length (based on Morse 1978 and Hamer 1979).

6.1.2. Non-Target Species

Non-target species are those species caught incidentally while targeting other species. Some non-target species are occasionally retained, others are commonly discarded.

Northeast Fisheries Observer Program (NEFOP) data from 2011-2015 indicate that spiny dogfish, little skate, black sea bass, summer flounder, longfin squid, butterfish, northern sea robin, winter skate, striped sea robin, and silver hake were the most commonly caught species on trips for which scup made up at least 75% of the landings (by weight; a proxy for directed scup trips). All these species, except northern and striped sea robins, are managed by the Mid-Atlantic or New England Fishery Management Councils. Northern and striped sea robins are not managed.

Management measures for the managed species include accountability measures (AMs) which address overages in annual catch limits (ACLs) through reductions in landings limits in following years. AMs for all these species, except *Illex* squid, take discards into account. These measures help to mitigate negative impacts from discards in the scup fishery, and other fisheries.

According to the most recent stock assessment information, spiny dogfish (NEFSC 2015a), little skate (NEFSC 2015c), black sea bass (NEFSC 2016b), butterfish (NEFSC 2014), and silver hake (NEFSC 2011) are not overfished and overfishing is not occurring. Overfishing is occurring for summer flounder (NEFSC 2016a) and winter skate (NEFSC 2015c), though neither stock is currently overfished. The overfishing status of longfin squid is unknown; however, the stock is not overfished and it appears to be lightly exploited (NEFSC 2010). Northern and striped sea robins have not been assessed, therefore their overfished and overfishing status is unknown.

In general, the seasonal distributions of black sea bass, summer flounder, longfin squid, butterfish, silver hake, and northern and striped sea robins are similar to that of scup. Specifically, they tend to be found closer to shore during warmer months and further offshore during cooler months (Cross et al. 1999, Morse et al. 1999, Packer et al. 1999, Klein-MacPhee and McBride 2002, Jacobson 2005, Drohan et al. 2007). The seasonal distributions of spiny dogfish, little skate, and winter skate differ more markedly from that of scup. Sub-adult and adult spiny dogfish are, in general, widely distributed throughout New England and Mid-Atlantic waters during the winter and spring. They prefer water temperatures below 15°C and thus are not typically found in the Mid-Atlantic during the summer and fall (Stehlik 2007). Little skate can be found on Georges Bank and the northern Mid-Atlantic Bight year-round. In more southern areas, they tend to move into shallower water in the spring and deeper water in the winter (Packer et al. 2003a). Some studies suggest that winter skate tend to be more common inshore during cooler months compared to warmer months; however, other studies suggest that they can be found in inshore areas year-round (Packer et al. 2003b).

6.2. Human Communities

Scup are commercially harvested year-round. The winter commercial fishery tends to occur offshore and the summer fishery occurs closer inshore, following seasonal patterns of scup movement (section 6.1.1). During the summer months, a greater number of vessels tend to land scup and those vessels tend to be smaller than during the winter months (Figure 21 and Figure 22). A moratorium permit is required to commercially harvest scup in Federal waters. In 2015, 650 vessels held scup moratorium permits.

During 2011-2015, most scup landed in commercial fisheries from Maine through North Carolina were caught with bottom otter trawls. Smaller amounts were caught with hand lines, pots/traps, pound nets, floating traps, sink gill nets, and dredges. A greater variety of gear types were used during the summer than during the winter (Figure 23). Bottom otter trawls accounted for at least 98% of the landings during the Winter I and Winter II periods, but only about 56% of landings during the Summer period during 2011-2015. Other gear types, such as hand lines, pots/traps, pound nets, and floating traps were more commonly used in the summer (Figure 23). The trends shown in Figure 23 were not consistent across every state. Commercial scup landings in Massachusetts, Connecticut, Rhode Island, and New York showed a similar pattern to that shown in Figure 23 (i.e. landings from a variety of gears in the summer and mostly from bottom

trawls in the winter). Commercial landings in New Jersey, Maryland, Virginia, and North Carolina were predominantly from bottom trawl gear year-round.[4]

Over 2011-2015, average commercial scup landings per month were highest during April (Winter I, when a 30,000-50,000 pound possession limit was in effect, depending on the year) and lowest during July (Summer, when much lower possession limits were in effect [Table 4]). Average landings per month were about 1.62 million pounds during the Winter I quota period (January – April), about 1.22 million pounds during the Summer period (May – October), and about 1.17 million pounds during the Winter II period (November-December; Figure 24).

Many factors influence the price of scup. Price and landings are not directly correlated; however, in general, ex-vessel price tends to be lower when landings are higher (Figure 24 and Figure 25). On average, during 2011-2015, price was highest in July and December ($0.83 per pound) and lowest in May ($0.47 per pound; Figure 25).

At least 100,000 pounds of scup were landed at each of 16 ports in seven states in 2015. The ports with the highest commercial scup landings were Point Judith, Rhode Island; Montauk, New York; Point Pleasant, New Jersey; New Bedford, Massachusetts, and Little Compton, Rhode Island. Table 6 shows average commercial scup landings by month by state over 2011-2015 as shown in commercial dealer data.

According to estimates from the Marine Recreational Information Program (MRIP), recreational fishermen from Maine through North Carolina landed an estimated 4.62 million pounds of scup in 2015 and took an estimated 461,840 trips for which scup was the primary target. An estimated 98% of recreational scup harvest occurred in state waters and 2% occurred in Federal waters.[5] In 2015, 717 vessels held Federal party/charter permits for scup. Over 2013-2015, about one third of the recreational scup landings occurred in Massachusetts and an additional third occurred in New York. Rhode Island and Connecticut also had notable recreational scup landings. Other states accounted for 1% or less of the annual recreational landings. Across all states, recreational landings were approximately evenly divided between waves 3 (May-June), 4 (July-August), and 5 (September-October; Table 7).

[4] Gear types by quota period by state cannot be quantitatively summarized in a meaningful way due to the prevalence of confidential data representing fewer than three dealers and/or permit holders.

[5] MRIP estimates downloaded January 11, 2017.

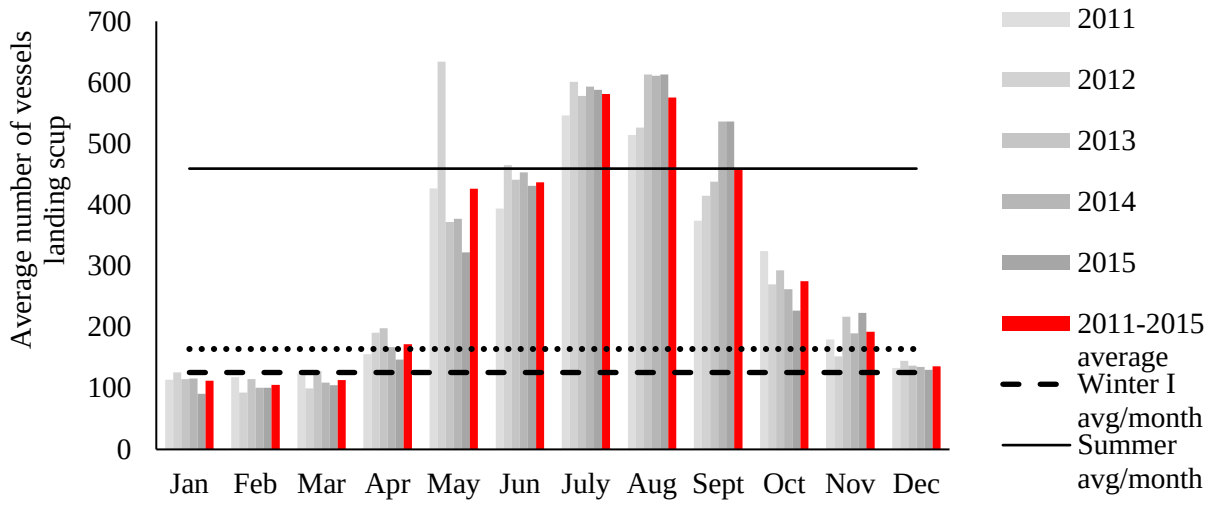

Figure 21: Number of commercial vessels which landed scup per month, 2011-2015 shown with average number of vessels per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods. Number of vessels was determined using a combination of permit number and hull number, as shown in dealer data. Vessels with an unknown permit number and an unknown hull number are not shown.

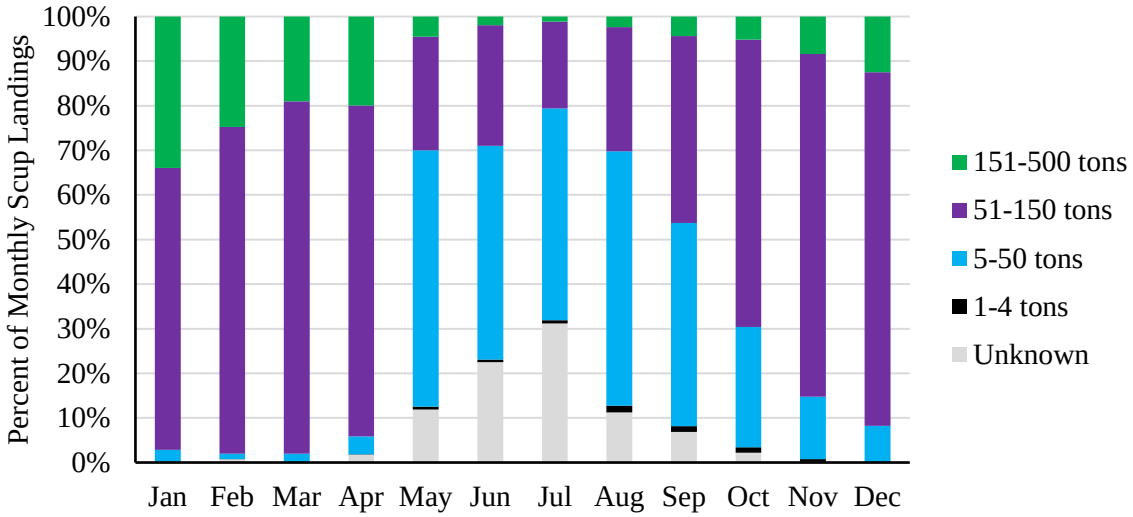

Figure 22: Average scup landings by month by vessel ton class, 2011-2015. Data for vessels greater than 500 tons are confidential and are not shown.

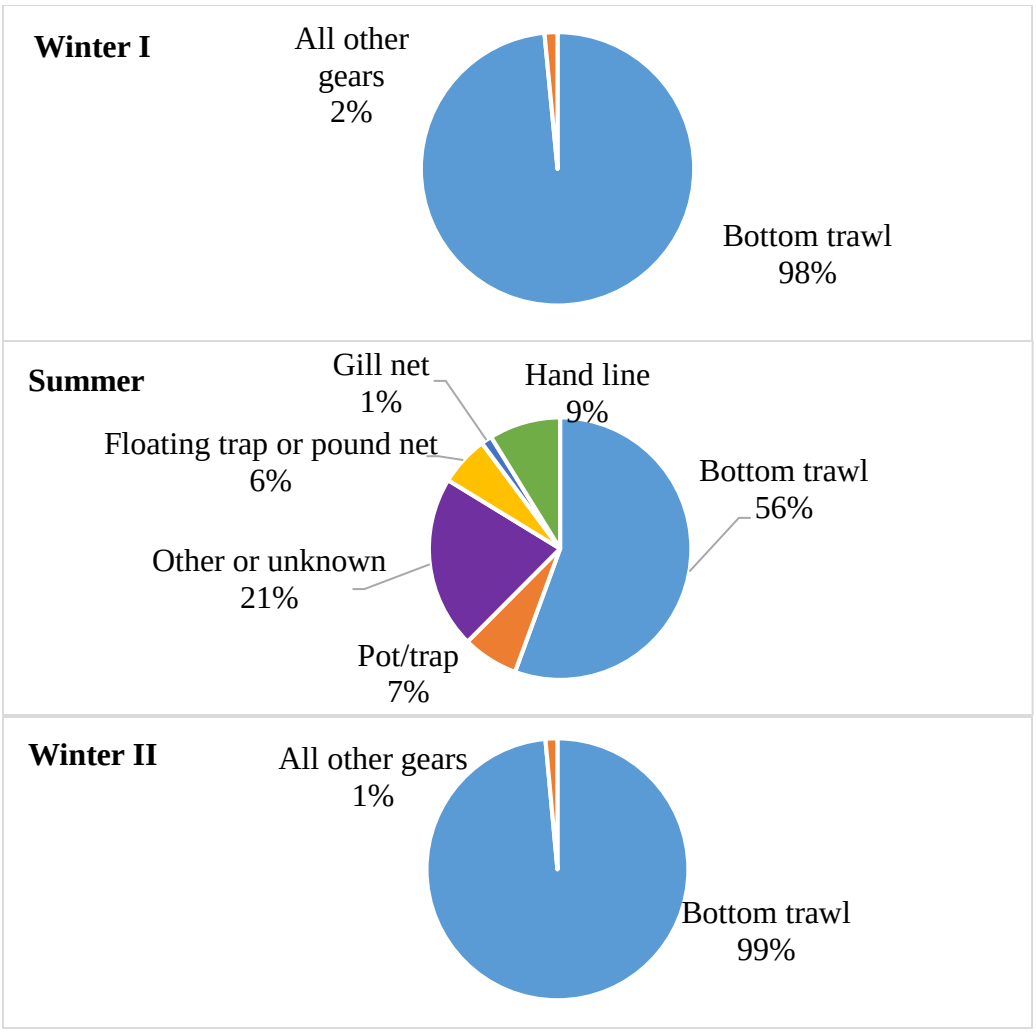

Figure 23: Scup landings by gear type and quota period, Maine through North Carolina, 2011-2015.

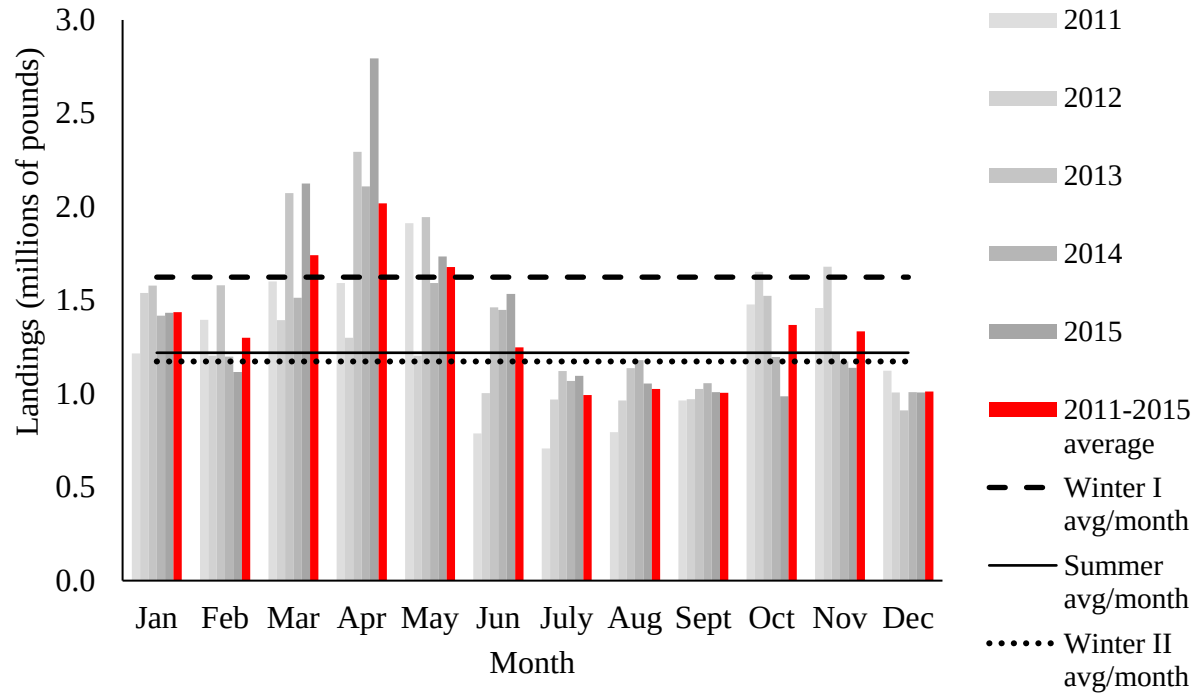

Figure 24: Commercial scup landings per month, 2011-2015, shown with average landings per month during the Winter I (January – April), Summer (May – October), and Winter II (November and December) quota periods.

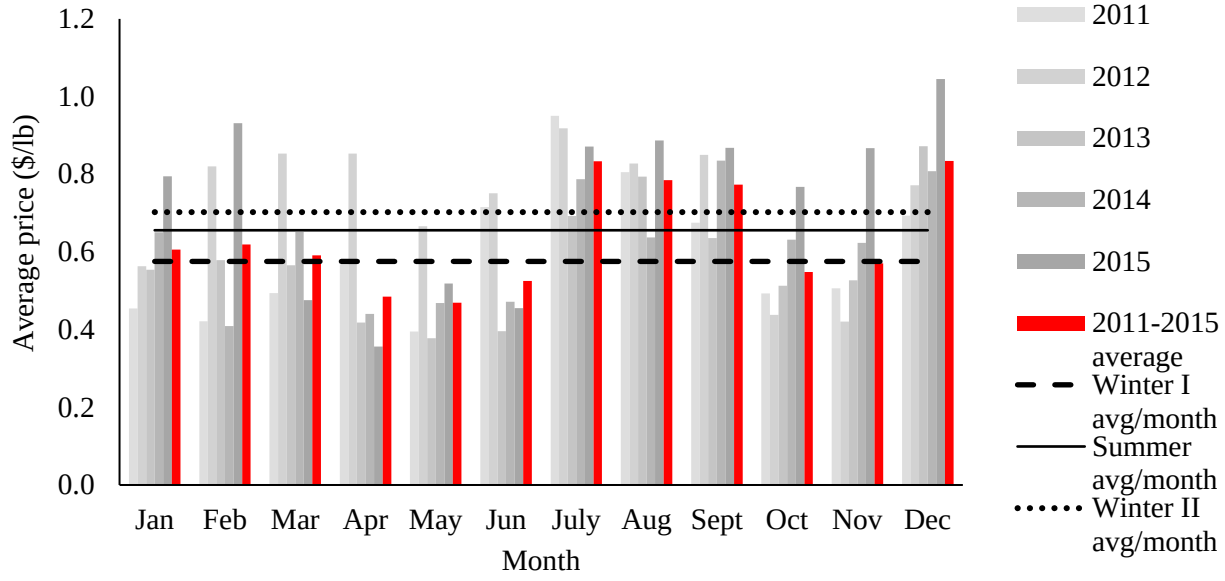

Figure 25: Average scup price per month, 2011-2015 shown with average price per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Table 6: Percent of annual commercial scup landings in each state from Massachusetts through North Carolina by month, 2011-2015. C refers to confidential data representing fewer than three vessels and/or dealers.

	MA	CT	RI	NY	NJ	DE	MD	VA	NC
Jan	13%	15%	3%	9%	19%	0%	22%	11%	11%
Feb	5%	14%	4%	6%	19%	0%	25%	9%	75%
Mar	3%	12%	7%	10%	20%	0%	30%	39%	1%
Apr	3%	17%	7%	16%	23%	0%	21%	24%	7%
May	16%	3%	15%	10%	1%	C	0%	1%	0%
Jun	6%	6%	10%	11%	1%	0%	0%	C	0%
Jul	23%	5%	7%	4%	0%	0%	0%	C	0%
Aug	21%	4%	9%	3%	0%	0%	0%	0%	0%
Sep	6%	3%	11%	3%	1%	C	0%	0%	0%
Oct	2%	6%	14%	7%	2%	C	0%	1%	0%
Nov	2%	7%	9%	12%	6%	C	0%	6%	0%
Dec	2%	7%	5%	9%	8%	C	2%	8%	6%

Table 7: Percent of annual recreational landings by wave and by state, 2013-2015. (Source: MRIP data, downloaded January 11, 2017). MRIP does not operate during wave 1 (January – February) in the states of Massachusetts through Virginia. MRIP estimates for wave 1, 2013-2015 in North Carolina showed now scup landings. No states had estimates of scup landings during wave 2 (March-April).

State	May/June	July/Aug	Sept/Oct	Nov/Dec	Coastwide Annual Landings
MASSACHUSETTS	73%	15%	11%	0%	35%
RHODE ISLAND	16%	44%	40%	0%	17%
CONNECTICUT	10%	42%	48%	0%	15%
NEW YORK	9%	46%	44%	2%	32%
NEW JERSEY	0%	27%	73%	0%	1%
DELAWARE	7%	4%	0%	89%	0%
MARYLAND	0%	0%	3%	97%	0%
VIRGINIA	0%	35%	65%	0%	0%
NORTH CAROLINA	40%	16%	39%	5%	0%
Total	**32%**	**34%**	**33%**	**1%**	

6.3. Protected Species

The protected species VEC includes all endangered, threatened, or candidate species, as well as all designated critical habitat under the Endangered Species Act (ESA) of 1973, and/or marine mammals protected under the Marine Mammal Protection Act (MMPA) of 1972, as amended. Numerous protected species and/or critical habitat occur in Northwest Atlantic waters that range from Maine to North Carolina (the management unit of the scup stock).

Cusk, blueback herring, and alewife are candidate species under the ESA (see Table 8). Candidate species are those petitioned species for which NMFS has determined that listing may be warranted under the ESA and those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. If a species is proposed for listing, the conference provisions under Section 7 of the ESA apply (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. For this reason, cusk, blueback herring, and alewife will not be discussed further in this and the following sections; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed action. Additional information on these candidate species can be found at http://www.nmfs.noaa.gov/pr/species/esa/candidate.htm

6.3.1. Protected Species and Critical Habitat Not Likely to be Affected by the Proposed Action

This action is not likely to affect blue whales, sperm whales, pygmy sperm whales, dwarf sperm whales, shortnose sturgeon, Atlantic spotted dolphins, striped dolphins, or hawksbill sea turtles. Further, this action is not likely to adversely affect critical habitat for North Atlantic right whales or the northwest Atlantic distinct population segment (DPS) of loggerhead sea turtle. This determination was made because either the occurrence of the species is not known to overlap with commercial scup fisheries and/or there have never been documented interactions between these species and the commercial scup fisheries (Waring et al. 2014a, 2015a, 2016; Hayes et al. 2017; NMFS 2013; NMFS NEFSC FSB 2015, 2016, 2017; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). Commercial scup fisheries will not affect the essential physical and biological features of North Atlantic right whale or loggerhead (Northwest Atlantic DPS) critical habitat and, and therefore, will not result in the destruction or adverse modification of critical habitat (NMFS 2013; NMFS 2014a; NMFS 2015a,b).

6.3.2. Protected Species Potentially Affected by the Proposed Action

Table 8 lists protected species of cetaceans, sea turtles, fish, and pinnipeds with ranges that include marine waters from Maine to North Carolina and which may be affected by fisheries operating in this region. These species have the potential to become entangled or bycaught in bottom otter trawls, the gear type that accounts for more than 95% of commercial scup landings each year. Other gear types are not considered in this section as they account for small proportions of commercial scup landings.

The MMPA List of Fisheries and marine mammal stock assessment reports for the Atlantic Region were referenced to aid in the identification of MMPA protected species potentially affected by the action (http://www.nmfs.noaa.gov/pr/sars/region.htm; http://www.nmfs.noaa.gov/pr/interactions/fisheries/lof.html). To aid in identifying ESA listed species potentially affected by the action, the 2013 Biological Opinion issued by NMFS on the operation of seven commercial fisheries, including the scup fisheries, and its impact on ESA listed species was referenced (NMFS 2013). The 2013 Opinion considered the best available information on ESA listed species and observed or documented interactions with gear types used to prosecute the seven fisheries. The 2013 Opinion concluded that commercial scup fisheries may adversely affect, but were not likely to jeopardize the continued existence of any ESA listed species. The Opinion included an incidental take statement (ITS) authorizing the take of specific numbers of ESA listed species of sea turtles, Atlantic salmon, and Atlantic sturgeon.[6] Reasonable and prudent measures and terms and conditions were also issued with the ITS to minimize impacts of any incidental take of these species.

New information on North Atlantic right whales may reveal effects of the fisheries analyzed in the 2013 Opinion that may not have been previously considered. As a result, per an October 17, 2017, ESA 7(a)(2)/7(d) memo issued by NMFS, the 2013 Opinion has been reinitiated. This memo concludes that allowing these fisheries (including the commercial scup fishery) to continue during the reinitiation period will not increase the likelihood of interactions with ESA listed species above the amount that would otherwise occur if consultation had not been reinitiated, and therefore, the continuation of these fisheries during the reinitiation period would not be likely to jeopardize the continued existence of any ESA listed species. Until replaced, the Summer Flounder, Scup, and Black Sea Bass FMP is currently covered by the incidental take statement authorized in NMFS 2013 Opinion.

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. Thus 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 and observed records of protected species interaction with particular fishing gear types, in order to understand the potential risk of an interaction. Information on species occurrence in the affected environment of the scup fishery and on protected species interactions with specific fishery gear is provided in the following sections of this document.

[6] The 2013 Opinion did not authorize take of ESA listed species of whales because (1) an incidental take statement cannot be lawfully issued under the ESA for a marine mammal unless incidental take authorization exists for that marine mammal under the MMPA (see 16 U.S.C. § 1536(b)(4)(C)), and (2) the incidental take of ESA- listed whales by the black sea bass fishery has not been authorized under section 101(a)(5) of the MMPA. However, as stated above, the 2013 Opinion assessed interaction risks to these species and concluded that 7 FMPs assessed may affect but would not jeopardize the continued existence of any ESA listed species of whales (NMFS 2013).

Table 8: ESA-listed and/or MMPA protected species that occur from Maine to North Carolina and may be affected by Greater Atlantic Region fisheries. Bolded/shaded species prefer continental shelf edge/slope waters (>200 meters), although incursions into continental shelf waters do occur seasonally or sporadically during periods of high prey abundance (Palmer 2017).

Species	Status
Cetaceans	
Minke whale (*Balaenoptera acutorostrata*)	Protected (MMPA)
Pilot whale (*Globicephala spp.*)[7]	**Protected (MMPA)**
Risso's dolphin (*Grampus griseus*)	**Protected (MMPA)**
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected (MMPA)
Short beaked common dolphin (*Delphinus delphis*)[8]	Protected (MMPA)
Bottlenose dolphin (*Tursiops truncatus*)[9]	Protected (MMPA)
Harbor porpoise (*Phocoena phocoena*)	Protected (MMPA)
Sea Turtles	
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
Green sea turtle, North Atlantic DPS (*Chelonia mydas*)	Threatened
Loggerhead sea turtle, Northwest Atlantic Ocean DPS (*Caretta caretta*)	Threatened
Fish	
Atlantic salmon (*Salmo salar*)	Endangered
Atlantic sturgeon *(Acipenser oxyrinchus)*	
Gulf of Maine DPS	Threatened
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS, & South Atlantic DPS	Endangered
Cusk (*Brosme brosme*)	Candidate
Blueback herring (*Alosa aestivalis*)	Candidate
Alewife (*Alosa pseudoharengus*)	Candidate

[7] There are two 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*.

[8] Prior to 2008, this species was called common dolphin.

[9] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.

Table 8, continued.

Species	Status
Pinnipeds	
Harbor seal (*Phoca vitulina*)	Protected (MMPA)
Gray seal (*Halichoerus grypus*)	Protected (MMPA)
Harp seal (*Phoca groenlandicus*)	Protected (MMPA)
Hooded seal (*Cystophora cristata*)	Protected (MMPA)

6.3.2.1. Sea Turtles

Kemp's ridley, leatherback, the North Atlantic DPS of green and the Northwest Atlantic DPS of loggerhead sea turtle are ESA-listed species of sea turtles that occur within marine waters from Maine through North Carolina. Green, loggerhead, and Kemp's ridley turtles are hard-shelled turtles. A general overview of sea turtle occurrence and distribution in the Northwest Atlantic Ocean is provided below to assist in understanding how the fisheries impacted by this framework may overlap in time and space with sea turtles. Maps depicting the range wide distribution and occurrence of sea turtles in this region can be found at: https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html; http://marinecadastre.gov/; and http://seamap.env.duke.edu/.

Hard-shelled Sea Turtles

In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, Massachusetts, although their presence varies with the seasons due to changes in water temperature (Shoop and Kenney 1992; Epperly *et al.*1995a, 1995b; Braun and Epperly 1996; Mitchell *et al.* 2003; Braun-McNeill *et al.* 2008; TEWG 2009). While hard-shelled turtles are most common south of Cape Cod, Massachusetts, they are known to occur in the Gulf of Maine. Loggerheads, the most common hard-shelled sea turtle in the Greater Atlantic Region, feed as far north as southern Canada. Loggerheads have been observed in waters with surface temperatures of 7 °C to 30 °C, but water temperatures ≥11 °C are most favorable (Shoop and Kenney 1992; Epperly *et al.* 1995b). Sea turtle presence in the U.S. Atlantic is also influenced by water depth. While hard-shelled turtles occur in waters from the beach to beyond the continental shelf, they are most commonly found in neritic waters of the inner continental shelf (Mitchell *et al.* 2003; Braun-McNeill and Epperly 2002; Morreale and Standora 2005; Blumenthal *et al.* 2006; Hawkes *et al.* 2006; McClellan and Read 2007; Mansfield *et al.* 2009; Hawkes *et al.*2011; Griffin *et al.* 2013).

Hard-shelled sea turtles occur year-round off Cape Hatteras, North Carolina and south. 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 (Epperly *et al.* 1995a, 1995b, 1995c; Braun-McNeill and Epperly 2002; Morreale and Standora 2005; Griffin *et al.* 2013),

occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the Gulf of Maine in June. The trend is reversed in the fall as water temperatures cool. The large majority leave the Gulf of Maine by September, but some remain in Mid-Atlantic and Northeast areas until late fall. By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further south (Shoop and Kenney 1992; Epperly *et al.* 1995b; Hawkes *et al.*2011; Griffin *et al.* 2013).

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. Leatherbacks engage in routine migrations between northern temperate and tropical waters. Similar to hard-shelled turtles, they are found in more northern waters (e.g. the Gulf of Maine) later in the year, with most leaving the Northwest Atlantic shelf by mid-November (NMFS and USFWS 1992; James *et al.* 2005; James *et al*. 2006; Eckert *et al.* 2006; Murphy *et al.* 2006; NMFS and USFWS 2013b; Dodge *et al.*2014).

6.3.2.2. Large Whales

Minke whale are the only whale species potentially affected by the proposed action (Table 8). In general, large whales, such as minke whales, follow an annual pattern of migration between low latitude (south of 35°N) wintering/calving grounds and high latitude spring/summer foraging grounds (primarily north of 41°N; Waring et al. 2014, 2015, 2016; Hayes et al. 2017; NMFS 1991, 2005, 2010b, 2011a, 2012b). This, however, is a simplification of whale movements, particularly as it relates to winter movements. It remains unknown if all individuals of a population migrate to low latitudes in the winter, although, increasing evidence suggests that for some species (e.g., right and humpback whales), some portion of the population remains in higher latitudes throughout the winter (Waring et al. 2014, 2015, 2016; Hayes et al. 2017; Khan et al. 2009, 2010, 2011, 2012; Brown et al. 2002; NOAA 2008; Cole et al. 2013; Clapham et al. 1993; Swingle et al. 1993; Vu et al. 2012). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Movements of whales into higher latitudes coincide with peak productivity in these waters. As a result, the distribution of large whales in higher latitudes is strongly governed by prey availability and distribution, with large numbers of whales coinciding with dense patches of preferred forage (Mayo and Marx 1990; Kenney et al. 1986, 1995; Baumgartner et al. 2003; Baumgartner and Mate 2003; Payne et al.1986, 1990; Brown et al. 2002; Kenney and Hartley 2001; Schilling et al. 1992). For additional information on the biology, status, and range wide distribution of whale species, such as the minke whale, please refer to marine mammal stock assessment reports provided at: http://www.nmfs.noaa.gov/pr/sars/region.htm.

Table 10 provides a general overview on the occurrence and distribution of minke whales in the affected environment of the scup fishery.

Table 9: Large whale species found from Maine through North Carolina and that may be affected by this action (Hayes et al. 2017).

Species	Listed Under the ESA	Protected Under the MMPA	MMPA Strategic Stock[10]
Minke Whale	No	Yes	No

Table 10: Large whale occurrence from Maine through North Carolina (Hayes et al. 2017)

Species	Prevalence and Approximate Months of Occurrence
Minke	• Widely distributed throughout continental shelf waters (<100m deep) of the Mid-Atlantic, southern New England, Gulf of Maine, and Georges Bank. • Most common in the EEZ from spring through fall, with greatest abundance in New England waters

6.3.2.3. Small Cetaceans

Table 11 lists the species of small cetaceans that occur in coastal and marine waters from Maine through North Carolina. Small cetaceans can be found throughout the year in the Northwest Atlantic Ocean (Hayes et al. 2017). Within this range there are seasonal shifts in distribution and abundance. Table 12 provides a general overview on species occurrence and distribution from Maine through North Carolina.

Table 11: Small cetacean species that occur in coastal and marine waters from Maine through North Carolina (Hayes et al. 2017).

Species	ESA Listed	Protected Under the MMPA	MMPA Strategic Stock
Atlantic White-Sided Dolphin	No	Yes	No
Short-Finned Pilot Whale	No	Yes	Yes
Long-Finned Pilot Whale	No	Yes	Yes
Risso's Dolphin	No	Yes	No
Short-Beaked Common Dolphin	No	Yes	No
Harbor Porpoise	No	Yes	No
Bottlenose Dolphin (*Western North Atlantic Offshore Stock*)	No	Yes	No
Bottlenose Dolphin (*Western North Atlantic Northern Migratory Coastal Stock*)	No	Yes	Yes[11]

[11] This stock is considered a strategic stock because it is designated as depleted under the MMPA. Depleted is defined by the MMPA as any stock in which: (1) the Secretary, after consultation with the Marine Mammal

Species	ESA Listed	Protected Under the MMPA	MMPA Strategic Stock
Bottlenose Dolphin (*Western North Atlantic Southern Migratory Coastal Stock*)	No	Yes	Yes[12]

Table 12: Small cetacean occurrence in coastal and marine waters from Maine through North Carolina (Palmer 2017; Hayes et al. 2017).

Species	Prevalence and Approximate Months of Occurrence
Atlantic White-Sided Dolphin	• Throughout continental shelf waters (primarily to 100 meter isobath) of the Mid-Atlantic (north of 35°N), southern New England, Georges Bank, and Gulf of Maine; most common from Hudson Canyon (~ 39°N) to Georges Bank and into the Gulf of Maine. • Jan-May: low densities from Georges Bank to Jeffreys Ledge. • June-Sept: large densities from Georges Bank through the Gulf of Maine. • Oct-Dec: intermediate densities from southern Georges Bank to southern Gulf of Maine. • Low densities year-round in southern New England and Mid-Atlantic, with waters off Virginia and North Carolina representing southern extent of range during winter months.
Short-Beaked Common Dolphin	• Regularly found throughout continental shelf-edge-slope waters (primarily between the 100-2,000 meter isobaths) of the Mid-Atlantic, southern New England, and Georges Bank (esp. in Oceanographer, Hydrographer, Block, and Hudson Canyons). • Less common south of Cape Hatteras, North Carolina, although schools have been reported as far south as the Georgia/South Carolina border. • Jan-May: Cape Hatteras, North Carolina, to Georges Bank (35° to 42°N). • Mid-summer through fall: primarily on Georges Bank with small numbers in the Gulf of Maine. Peak abundance on Georges Bank in the autumn.

Commission and the Committee of Scientific Advisors on Marine Mammals, determines that a species or population stock is below its optimum sustainable population; (2) a state, to which authority for the conservation and management of a species or population stock is transferred under section 109, determines that such species or stock is below its optimum sustainable population; or (3) a species or population stock is listed as an endangered species or a threatened species under the ESA.

Species	Prevalence and Approximate Months of Occurrence
Risso's Dolphin	• Spring - fall: continental shelf edge from Cape Hatteras, North Carolina to Georges Bank. • Winter: Mid-Atlantic Bight, extending into oceanic waters. • Rarely seen in the Gulf of Maine; primarily a Mid-Atlantic continental shelf edge species (can be found year round).
Harbor Porpoise	• Throughout continental shelf waters of the Mid-Atlantic (north of 35°N), southern New England, Georges Bank, and Gulf of Maine. • July-Sept: concentrated in northern Gulf of Maine (< 150 meters); low numbers on Georges Bank. • Oct-Dec: widely dispersed from New Jersey to Maine; found from the coastline to >1,800 meters. • Jan-Mar: intermediate densities off New Jersey to North Carolina; low densities off New York to Gulf of Maine. • April-June: widely dispersed from New Jersey to Maine; found from the coastline to >1,800 meters.
Bottlenose Dolphin	<u>Western North Atlantic Offshore Stock</u> • Primarily along the outer continental shelf and continental slope in the Northwest Atlantic from Georges Bank to Florida in depths greater than or equal to 40 meters. <u>Western North Atlantic Northern Migratory Coastal Stock</u> • Warm months (e.g. July-Aug): shoreline to ~25-meter isobath between the Chesapeake Bay mouth and Long Island, New York. • Cold months (e.g. Jan-March): coastal waters from Cape Lookout, North Carolina, to the North Carolina/Virginia border. <u>Western North Atlantic Southern Migratory Coastal Stock</u> • Oct-Dec: south of Cape Lookout, North Carolina • Jan-Mar: stock moves as far south as northern Florida. • April-June: stock moves north to waters of North Carolina. • July-Aug: presumed to occupy coastal waters north of Cape Lookout, North Carolina to the eastern shore of Virginia. •
Pilot Whales: *Short- and Long-Finned*	<u>Short-Finned Pilot Whales</u> • Except for area of overlap (see below), primarily occur south of 40°N (Mid-Atlantic and southern New England) • May - Dec (approximately): primarily near the continental shelf break off Mid-Atlantic and southern New England; individuals begin shifting to southern waters (35°N and south) in the fall. <u>Long-Finned Pilot Whales</u>

Species	Prevalence and Approximate Months of Occurrence
	• Except for area of overlap (see below), primarily occur north of 42°N. • Winter to early spring (Nov - April): primarily along the continental shelf edge-slope • Late spring through fall (May through October): movements and distribution shift onto/within Georges Bank, the Great South Channel, and Gulf of Maine. Area of Species Overlap: between approximately 38°N and 41°N.

Notes: Information presented in table is representative of small cetacean occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 meter isobath.

6.3.2.4. Pinnipeds

Table 13 lists the species of pinnipeds that occur in coastal and marine waters from Maine through North Carolina.

Table 13: Pinniped species that occur in coastal and marine waters from Maine through North Carolina (Waring et al. 2007; Waring et al. 2014a, Waring et al. 2015, Waring et al. 2016, Hayes et al. 2017).

Species	Listed Under the ESA	Protected Under the MMPA	MMPA Strategic Stock
Harbor Seal	No	Yes	No
Gray Seal	No	Yes	No
Harp Seal	No	Yes	No
Hooded Seal	No	Yes	No

Pinnipeds are found in nearshore coastal waters of the Northwest Atlantic Ocean. They are primarily found throughout the year or seasonally from New Jersey to Maine. Increasing evidence indicates that some species (e.g. harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (Waring et al. 2007, 2014a, 2015, 2016; Hayes et al. 2017). Table 14 provides a general overview of species occurrence and distribution from Maine through North Carolina.

Table 14: Pinniped occurrence in coastal and marine waters from Maine through North Carolina (Waring et al. 2007, Waring et al. 2014a, Waring et al. 2015, Waring et al. 2016, Hayes et al. 2017).

Species	Prevalence
Harbor Seal	• Primarily New Jersey to Maine. Increasing evidence indicates that their range is extending as far south as Cape Hatteras, North Carolina • Year Round: off Maine • Sept-May: New England to New Jersey.
Gray Seal	• Maine to New Jersey. • Year Round: Maine to Massachusetts. • Sept-May: Rhode Island to New Jersey.
Harp Seal	• Approximately January-May: Maine to New Jersey.
Hooded Seal	• Approximately January-May: New England.

6.3.2.5. Atlantic Sturgeon

Five DPSs of Atlantic sturgeon are likely to occur from Maine through North Carolina: the Gulf of Maine DPS (threatened), the New York Bight DPS (endangered), the Chesapeake Bay DPS (endangered), the Carolina DPS (endangered), and the South Atlantic DPS (endangered). For additional information on the biology, status, and range-wide distribution of each DPS see 77 *Federal Register* 5880 and 77 *Federal Register* 5914 and ASSRT 2007.

The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. Atlantic sturgeon from all five DPSs have the potential to be located anywhere in this marine range (ASSRT 2007; Dovel and Berggren 1983; Dadswell et al. 1984; Kynard et al. 2000; Stein et al. 2004a; Dadswell 2006; Laney et al. 2007; Dunton et al. 2010; Dunton et al. 2012; Dunton et al. 2015; Erickson et al. 2011; Wirgin et al. 2012; O'Leary et al. 2014; Waldman et al. 2013; Wirgin et al. 2015a,b).

Atlantic sturgeon appear to primarily occur inshore of the 50-meter depth contour (Stein et al. 2004 a,b; Erickson et al. 2011; Dunton et al. 2010). Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein et al. 2004a,b; Dunton et al. 2010; Erickson et al. 2011). Atlantic sturgeon undertake seasonal movements along the coast. For instance, satellite-tagged adult sturgeon from the Hudson River are found to have concentrated in the southern part of the Mid-Atlantic Bight, at depths greater than 20 meters, during winter and spring, while in the summer and fall, concentrations shifted to the northern portion of the Mid-Atlantic Bight at depths less than 20 meters (Erickson et al. 2011). A similar seasonal trend was found by Dunton et al. 2010. Analysis of fishery-independent survey data indicated a coastwide distribution of Atlantic sturgeon during the spring and fall; a southerly (e.g. North Carolina, Virginia) distribution during the winter, and a centrally located (e.g. Long Island to Delaware) distribution

during the summer. There is some indication that Atlantic sturgeon are undertaking seasonal movements horizontally and vertically along the U.S. eastern coastline; however, there is no evidence to date that all Atlantic sturgeon make these seasonal movements (Erickson et al. 2011, Dunton et al. 2010, Wippelhauser 2012).

Within the marine range of Atlantic sturgeon, several marine aggregation areas have been identified adjacent to estuaries and/or coastal features formed by bay mouths and inlets along the U.S. eastern seaboard. Depths in these areas are generally no greater than 25 meters (Stein et al. 2004a; Laney et al. 2007; Dunton et al. 2010; Erickson et al. 2011). Although additional studies are still needed to clarify why these sites are chosen by Atlantic sturgeon, there is some indication that they may serve as thermal refuges, wintering sites, or marine foraging areas (Stein et al. 2004a; Dunton et al. 2010; Erickson et al. 2011). The following are the currently known marine aggregation sites located within the operational range of commercial scup fisheries:

- Waters off North Carolina, including Virginia/North Carolina border (Laney et al. 2007)
- Waters off the Chesapeake and Delaware Bays (Stein et al. 2004a; Dunton et al. 2010; Erickson et al. 2011; Oliver et al. 2013)
- New York Bight (e.g. waters off Sandy Hook, New Jersey, and Rockaway Peninsula, New York; Stein et al. 2004a; Dunton et al. 2010; Erickson et al. 2011; O'Leary et al. 2014)
- Massachusetts Bay (Stein et al. 2004a)
- Long Island Sound (Bain et al. 2000; Savoy and Pacileo 2003; Waldman et al. 2013)
- Connecticut River Estuary (Waldman et al. 2013)

Numerous genetic studies have addressed DPS distribution and composition in marine waters of the Northwest Atlantic (e.g. Wirgin et al. 2012; Wirgin et al. 2015a,b; Waldman et al. 2013; O'Leary et al. 2014; Dunton et al. 2012).[13] These studies show that Atlantic sturgeon from multiple DPSs can be found at any single location along the Northwest Atlantic coast, with the Mid-Atlantic locations consistently comprised of all five DPSs (Wirgin et al. 2012; Wirgin et al. 2015a,b;Waldman et al. 2013; O'Leary et al. 2014; Dunton et al. 2012; Damon-Randall et al. 2013).

6.3.2.6. Atlantic Salmon (Gulf of Maine DPS)

Wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, while the marine range of the Gulf of Maine DPS extends from the Gulf of Maine (primarily northern portion of the Gulf of Maine) to the coast of Greenland (NMFS and USFWS 2005, 2016; Fay et al. 2006). In general, smolts, post-smolts, and adult Atlantic salmon may be present in the Gulf of Maine and coastal waters of Maine beginning in April and adults

[13] Genetic studies did not sample Atlantic sturgeon south of North Carolina.

may be present throughout the summer and fall months (Baum 1997; Fay et al. 2006; USASAC 2004; Hyvarinen et al. 2006; Lacroix and McCurdy 1996; Lacroix et al. 2004, 2005; Reddin 1985; Reddin and Short 1991; Reddin and Friedland 1993, Sheehan *et al.* 2012; NMFS and USFWS 2005, 2016; Fay et al. 2006).

6.3.3. Interactions Between Fishing Gear and Protected Species

To understand the potential risk of an interaction, it is necessary to consider species presence in the affected environment of the fishery and overlap with fishing effort, as well as the potential for interaction with particular fishing gear types based on the available data.

Protected species are vulnerable to interactions with various types of fishing gear, with interaction risks associated with gear type, quantity, and soak or tow time. Available information on gear interactions with a given species (or species group) is provided in the sections below. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is placed on bottom trawl gear as this gear type accounts for at least 95% of commercial scup landings each year.

6.3.3.1. Interactions Between Bottom Trawl Gear and Marine Mammals

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.[14] The categorization in the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration under the Marine Mammal Authorization Program, 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.

Categorization of fisheries is based on the following two-tiered, stock-specific approach:

- **Tier 1** considers cumulative fishery mortality and serious injury for a particular stock. If the total annual mortality and serious injury rates within a stock resulting from all fisheries are less than or equal to 10% of the stock's potential biological removal (PBR), all fisheries associated with this stock fall into Category III. If mortality and serious injury rates are greater than 10% of PBR, the following Tier 2 analysis occurs.
- **Tier 2** considers fishery-specific mortality and serious injury for a particular stock. Specifically, this analysis compares fishery-specific annual mortality and serious injury rates to a stock's PBR to designate the fishery as a Category I, II, or III fishery (Table 15).

[14] The most recent LOF was issued January 12, 2017 (82 FR 3655).

Table 15: Descriptions of the Tier 2 fishery classification categories (50 CFR 229.2).

Category	Level of incidental mortality or serious injury of marine mammals	Annual mortality and serious injury of a stock in a given fishery
Category I	Frequent	≥50% of the PBR level
Category II	Occasional	1% - 50% of the PBR level
Category III	Remote likelihood or no known	≤1% of the PBR level

6.3.3.1.1. Interactions Between Bottom Trawl Gear and Large Whales

With the exception of minke whales, there have been no observed interactions with large whales and bottom trawl gear. To date, bottom trawl interactions have only been observed in the northeast bottom trawl fisheries. From the period of 2008-2012, the estimated annual mortality attributed to this fishery was 7.8 minke whales for 2008 and zero minke whales from 2009-2012; no serious injuries were reported during this time (Waring et al. 2015). Based on this information, from 2008-2012, the estimated annual average minke whale mortality and serious injury attributed to the northeast bottom trawl fishery was 1.6 (CV=0.69) whales (Waring et al. 2015). Lyssikatos (2015) estimated that from 2008-2013, mean annual serious injuries and mortalities from the northeast bottom trawl fishery were 1.40 (CV=0.58) minke whales. Serious injury and mortality records for minke whales in U.S. waters from 2010-2014 showed zero interactions with bottom trawl (northeast or Mid-Atlantic) gear (Henry et al. 2016; Hayes et al. 2017).

Based on above information, bottom trawl gear is likely to pose a low interaction risk to any large whale species. Should an interaction occur, serious injury or mortality to any large whale is possible; however, relative to other gear types, such as fixed gear, trawl gear represents a low source serious injury or mortality to any large whale (Henry et al. 2016; Hayes et al. 2017).

6.3.3.1.2. Interactions Between Bottom Trawl Gear and Small Cetaceans and Pinnipeds

Small cetacean and pinniped species have been observed seriously injured and killed in bottom trawl gear and have been observed taken in this gear type on trips targeting scup (Lyssikatos 2015, Waring et al. 2014a,b; Waring et al. 2015a,b; Waring et al. 2016; Hayes et al. 2017; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).[15] Total annual bycatch mortality in Northeast and Mid-Atlantic commercial bottom trawl trips (considers all FMPs) from 2008-2013 is provided in Lyssikatos (2015). The highest annual bycatch mortality in bottom trawl gear (Northeast and Mid-Atlantic combined) was observed for short beaked common dolphins,

[15] For additional information on small cetacean and pinniped interactions prior to those provided in Waring et al. 2014a,b, see: http://www.nmfs.noaa.gov/pr/sars/region.htm

followed by Atlantic white-sided dolphins, gray seals, risso's dolphins, long-finned pilot whales, bottlenose dolphins, harbor seals, harbor porpoise, and harp seals (Lyssikatos 2015).

In 2006, based on observed mid-water trawl interactions with long-finned pilot whales, short - finned pilot whales, common dolphins, and white sided dolphins, the Atlantic Trawl Gear Take Reduction Team (ATGTRT) was convened to address the incidental mortality and serious injury of these species incidental to bottom and mid-water trawl fisheries operating in both the Northeast and Mid-Atlantic regions. Because none of the marine mammal stocks of concern to the ATGTRT are classified as a "strategic stock", nor do they currently interact with a Category I fishery, it was determined at the time that development of a take reduction plan was not necessary. In lieu of a take reduction plan, the ATGTRT agreed to develop an Atlantic Trawl Gear Take Reduction Strategy (ATGTRS). The ATGTRS identifies informational and research tasks, as well as education and outreach needs, to provide the basis for decreasing mortalities and serious injuries of marine mammals to insignificant levels approaching zero mortality and serious injury rates. The ATGTRS also identifies several voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals. For additional details, visit: http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/

6.3.3.2. Interactions Between Bottom Trawl Gear and Sea Turtles

Sea turtles are known to interact with bottom trawl gear. Most of the observed sea turtle interactions with bottom trawl gear have occurred in the Mid-Atlantic, although some interactions have been observed on Georges Bank. As few sea turtle interactions have been observed outside the Mid-Atlantic, there is insufficient data available to conduct a robust model-based analysis of sea turtle interactions with trawl gear to produce a bycatch estimate for these regions. As a result, the following bycatch estimates are based on observed sea turtle interactions in trawl gear in the Mid-Atlantic.

Green, Kemp's ridley, leatherback, loggerhead, and unidentified sea turtles have been documented interacting with bottom trawl gear. However, estimates are available only for loggerhead sea turtles. Warden (2011a) estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic[16] was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but released through a Turtle Excluder Device (TED). Of the 292 average annual observable loggerhead interactions, approximately 44 of those were adult equivalents (Warden 2011a).[17] Most recently, Murray (2015) estimated that from 2009-2013, the total average annual

[16] Warden (2011a) defined the Mid-Atlantic as south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border.

[17] Adult equivalence considers the reproductive value (i.e., expected reproductive output) of the animal (Warden 2011a.b, Murray 2013, Wallace et al. 2008).

loggerhead interactions in bottom trawl gear in the Mid-Atlantic[18] was 231 (CV=0.13, 95% CI=182-298). Of the 231 average annual observable loggerhead interactions, approximately 33 of those were adult equivalents (Murray 2015). Bycatch estimates provided in Warden (2011a) and Murray (2015) represent a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated at 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). This decrease is likely due to decreased fishing effort in high-interaction areas (Warden 2011a). Warden (2011b), also estimated total loggerhead interactions (with bottom otter trawl gear) attributable to managed species from 2005-2008. Using Northeast Fisheries Observer Program (NEFOP) data, Warden (2011b) developed a generalized additive model of loggerhead interaction rates, which were then applied to VTRs to estimate total interactions on each VTR trip. The total loggerhead interactions on each trip were then assigned to the individual managed species that were landed on the trip (as reported in VTR data; Warden 2011b). For instance, an estimated average annual take of one loggerhead (95% CI=1-3; estimated observable, and unobservable but quantifiable) was attributed to the scup fishery. Murray (2015) provided similar estimates of loggerhead interactions by managed fished species from 2009-2013. Specifically, estimated average annual take of four loggerheads (95% CI=2-7) was attributed to the scup fishery (Murray 2015).

6.3.3.3. Interactions Between Fishing Gear and Atlantic Sturgeon

Atlantic sturgeon are known to interact with bottom trawl gear and have been observed in this gear type over the last 27 years (NMFS NEFSC FSB 2015, 2016, 2017). Reviewing NEFOP observed data since 1989, five confirmed Atlantic sturgeon have been observed in bottom otter trawl gear where the primary species being targeted was scup (NMFS NEFSC FSB 2015, 2016, 2017). Three documents that use data collected by the NEFOP to describe bycatch of Atlantic sturgeon in bottom trawls: Stein et al. (2004b), ASMFC (2007), and Miller and Shepard (2011). None of these provide estimates of Atlantic sturgeon bycatch by DPS. Information provided in all three documents indicate that sturgeon bycatch occurs in bottom otter trawl gear, with the most recent document estimating, based on fishery observer data and VTR data from 2006-2010, that annual bycatch of Atlantic sturgeon in bottom trawl gear was 1,342 animals (Miller and Shepard 2011). Specifically, Miller and Shepard (2011) observed Atlantic sturgeon interactions in trawl gear with small (< 5.5 inches) and large (≥ 5.5 inches) mesh sizes.[19] Although Atlantic sturgeon were observed to interact with trawl gear with various mesh sizes, based on observer data, Miller and Shepard (2011) concluded that, in general, trawl gear posed less of a mortality risk to Atlantic sturgeon than gillnet gear. Estimated mortality rates in gillnet gear were 20.0%, while those in otter trawl gear were 5.0% (Miller and Shepard 2011; NMFS 2013). Similar conclusions were reached in Stein et al. 2004b and ASMFC 2007. However, an important

[18] Murray (2015) defined the Mid-Atlantic as the boundaries of the Mid-Atlantic Ecological Production; roughly waters west of 71ºW to the North Carolina/South Carolina border)

[19] The minimum mesh size bottom otter trawls targeting summer flounder, scup and black sea bass are 5.5", 5.0", and 4.5" respectively.

consideration to the findings of Stein et al. (2004b), ASMFC (2007), and Miller and Shepard (2011) is that observed mortality is considered a minimum of what actually occurs and therefore, the conclusions reached by Stein et al. (2004b), ASMFC (2007), and Miller and Shepard (2011) are not reflective of the total mortality associated with either gear type. As a result, until additional studies are conducted, it is remains uncertain what the overall impacts to Atlantic sturgeon survival are from trawl interactions (Beardsall et al. 2013) and therefore, trawls should not be discounted as a form of gear that poses a mortality risk to Atlantic sturgeon. Further, even if an animal is released alive, pursuant to the ESA, any Atlantic sturgeon interaction with fishing gear is considered take.

6.3.3.4. Interactions Between Fishing Gear and Atlantic Salmon

The NEFOP and ASM Program documented a total of 15 individual salmon incidentally caught on over 60,000 observed commercial fishing trips from 1989 through August 2013 (NMFS 2013; Kocik et al. 2014). Four out of the 15 individual salmon were observed bycaught in bottom otter trawl gear, the remainder were observed in gillnet gear (Kocik, personal communication; NMFS 2013). This suggests that bottom trawl interactions with Atlantic salmon are rare events (NMFS 2013; Kocik et al. 2014).

6.4. Physical Habitat

The physical, chemical, biological, and geological components of benthic and pelagic environments are important aspects of habitat for marine species and have implications for reproduction, growth, and survival of marine species. The following sections briefly describe key aspects of physical habitats which may be impacted by the alternatives considered in this document. This information is largely drawn from Stevenson et al. (2004), unless otherwise noted.

6.4.1. Physical Environment

Scup inhabit the northeast U.S. shelf ecosystem, which includes the area from the Gulf of Maine south to Cape Hatteras, extending seaward from the coast to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The northeast shelf ecosystem includes 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. The continental shelf in this region 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. Currents and waves have since modified this basic structure.

Shelf and slope waters of the Mid-Atlantic Bight have a slow southwestward flow that is occasionally interrupted by warm core rings or meanders from the Gulf Stream. On average, shelf water moves parallel to bathymetry isobars at speeds of 5 - 10 cm/s at the surface and 2 cm/s or less at the bottom. Storm events can cause much more energetic variations in flow. Tidal currents on the inner shelf have a higher flow rate of 20 cm/s that increases to 100 cm/s near inlets.

The shelf slopes gently from shore out to between 100 and 200 km offshore where it transforms to the slope (100 - 200 m water depth) at the shelf break. 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 m into the shelf; however, the Hudson Shelf Valley is about 35 m 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.

Some sand ridges are more modern in origin than the shelf's glaciated morphology. Their formation is not well understood; however, they appear to develop from the sediments that erode from the shore face. They maintain their shape, so it is assumed that they are in equilibrium with modern current and storm regimes. They are usually grouped, with heights of about 10 m, lengths of 10 - 50 km and spacing of 2 km. Ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. The seaward face usually has the steepest slope. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Swales occur between sand ridges. Since ridges are higher than the adjacent swales, they are exposed to more energy from water currents and experience more sediment mobility than swales. Ridges tend to contain less fine sand, silt and clay while relatively sheltered swales contain more of the finer particles. Swales have greater benthic macrofaunal density, species richness and biomass, due in part to the increased abundance of detrital food and the less physically rigorous conditions.

Sand waves are usually found in patches of 5 - 10 with heights of about 2 m, lengths of 50 - 100 m and 1 - 2 km between patches. Sand waves are primarily found on the inner shelf, and often observed on sides of sand ridges. They may remain intact over several seasons. Megaripples occur on sand waves or separately on the inner or central shelf. During the winter storm season, they may cover as much as 15% of the inner shelf. They tend to form in large patches and usually have lengths of 3 - 5 m with heights of 0.5 - 1 m. Megaripples tend to survive for less than a season. They can form during a storm and reshape the upper 50 - 100 cm of the sediments within a few hours. Ripples are also found everywhere on the shelf and appear or disappear within hours or days, depending upon storms and currents. Ripples usually have lengths of about 1 - 150 cm and heights of a few centimeters.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 - 10 m 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% fine on the slope. On the slope, silty sand, silt, and clay predominate (Stevenson et al. 2004).

Greene et al. (2010) identified and described Ecological Marine Units (EMUs) in New England and the Mid-Atlantic based on sediment type, seabed form (a combination of slope and relative depth)[20], and benthic organisms.[21] According to this classification scheme, the sediment composition off New England and the Mid-Atlantic is about 68% sand, 26% gravel, and 6% silt/mud. The seafloor is classified as about 52% flat, 26% depression, 19% slope, and 3% steep (Table 16).

Artificial reefs are another significant Mid-Atlantic habitat. These localized areas of hard structure were formed by shipwrecks, lost cargoes, disposed solid materials, shoreline jetties and groins, submerged pipelines, cables, and other materials (Steimle and Zetlin 2000). Some of these materials were deposited specifically for use as fish habitat, but most have an alternative primary purpose; however, they have all become an integral part of the coastal and shelf ecosystem. In general, reefs are important for attachment sites, shelter, and food for many species. Fish predators may be attracted by prey aggregations or may be behaviorally attracted to the reef structure.

[20] Seabed form contains the categories of depression, mid flat, high flat, low slope, side slope, high slope, and steep slope.

[21] See Greene et al. 2010 for a description of the methodology used to define EMUs.

Like all the world's oceans, the western North Atlantic is experiencing changes to the physical environment due to global climate change. These changes include warming temperatures; sea level rise; ocean acidification; changes in stream flow, ocean circulation, and sediment deposition; and increased frequency, intensity and duration of extreme climate events. These changes in physical habitat can impact the metabolic rate and other biological processes of marine species. As such, these changes have implications for the distribution and productivity of marine species. Several studies demonstrate that the distribution and productivity of several species in the Mid-Atlantic have changed over time, likely due to changes in physical habitat conditions such as temperature (e.g. Weinberg 2005, Lucey and Nye 2010, Nye et al. 2011, Pinsky et al. 2013, Gaichas et al. 2015).

Table 16: Composition of Ecological Marine Units (EMUs) off New England and the Mid-Atlantic (Greene et al. 2010). EMUs which cover less than 1% of this region are not shown.

Ecological Marine Unit	Percent Coverage
High Flat Sand	13%
Moderate Flat Sand	10%
High Flat Gravel	8%
Side Slope Sand	6%
Somewhat Deep Flat Sand	5%
Low Slope Sand	5%
Moderate Depression Sand	4%
Very Shallow Flat Sand	4%
Side Slope Silt/Mud	4%
Moderate Flat Gravel	4%
Deeper Depression Sand	4%
Shallow Depression Sand	3%
Very Shallow Depression Sand	3%
Deeper Depression Gravel	3%
Shallow Flat Sand	3%
Steep Sand	3%
Side Slope Gravel	3%
High Flat Silt/Mud	2%
Shallow Depression Gravel	2%
Low Slope Gravel	2%
Moderate Depression Gravel	2%
Somewhat Deep Depression Sand	2%
Deeper Flat Sand	1%
Shallow Flat Gravel	1%
Deep Depression Gravel	1%
Deepest Depression Sand	1%
Very Shallow Depression Gravel	1%

6.4.2. Essential Fish Habitat (EFH)

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (MSA section 3). The MSA requires that Councils describe and identify EFH for managed species and "minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat" (MSA section 303 (a)(7)).

The broad definition of EFH has led the Mid-Atlantic and the New England Fishery Management Councils to identify EFH throughout most of the Northeast U.S. Shelf Ecosystem, ranging from areas out to the shelf break to wetlands, streams, and rivers. Table 17 summarizes EFH in the northeast shelf ecosystem for federally-managed species and life stages that are vulnerable to bottom tending fishing gear.

Table 17: Essential Fish Habitat descriptions for federally-managed species/life stages that are vulnerable to bottom tending fishing gear in the U.S. northeast shelf ecosystem.

Species	**Life Stage**	**Geographic Area of EFH**	**Depth (meters)**	**Bottom Type**
American plaice	juvenile	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 150	Fine grained sediments, sand, or gravel
American plaice	adult	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 175	Fine grained sediments, sand, or gravel
Atlantic cod	juvenile	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	25 - 75	Cobble or gravel
Atlantic cod	adult	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	10 - 150	Rocks, pebbles, or gravel
Atl halibut	juvenile	GOM and GB	20 - 60	Sand, gravel, or clay
Atl halibut	adult	GOM and GB	100 - 700	Sand, gravel, or clay
Barndoor skate	juvenile/ adult	Eastern GOM, GB, SNE, Mid-Atlantic Bight to Hudson Canyon	l0-750, most < 150	Mud, gravel, and sand
Black sea bass	juvenile	GOM to Cape Hatteras, NC, including estuaries from Buzzards Bay to Long Island Sound, Gardiners Bay, Barnegat Bay to Chesapeake Bay, Tangier/ Pocomoke Sound, and James River	1 - 38	Rough bottom, shellfish/ eelgrass beds, manmade structures, offshore clam beds, and shell patches
Black sea bass	adult	GOM to Cape Hatteras, NC, including Buzzards Bay, Narragansett Bay, Gardiners Bay, Great South Bay, Barnegat Bay to Chesapeake Bay, and James River	20 - 50	Structured habitats (natural and manmade), sand and shell substrates preferred
Clearnose skate	juvenile/ adult	GOM, along continental shelf to Cape Hatteras, NC, including the estuaries from Hudson River/Raritan Bay south to the Chesapeake Bay mainstem	0 – 500, most < 111	Soft bottom and rocky or gravelly bottom
Haddock	juvenile	GB, GOM, and Mid-Atlantic south to Delaware Bay	35 - 100	Pebble and gravel
Haddock	adult	GB, eastern side of Nantucket Shoals, and throughout GOM	40 - 150	Broken ground, pebbles, smooth hard sand, and smooth areas between rocky patches
Little skate	juvenile/ adult	GB through Mid-Atlantic Bight to Cape Hatteras, NC; includes estuaries from Buzzards Bay south to mainstem Chesapeake Bay	0-137, most 73 - 91	Sandy or gravelly substrate or mud

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
Ocean pout	eggs	GOM, GB, SNE, and Mid-Atlantic south to Delaware Bay, including the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay and Cape Cod Bay	<50	Generally sheltered nests in hard bottom in holes or crevices
Ocean pout	juvenile	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, and Cape Cod Bay	< 50	Close proximity to hard bottom nesting areas
Ocean pout	adult	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, MA Bay, Boston Harbor, and Cape Cod Bay	< 80	Smooth bottom near rocks or algae
Pollock	adult	GOME, GB, SNE, and Mid-Atlantic south to New Jersey and the following estuaries: Passamaquoddy Bay, Damariscotta R., MA Bay, Cape Cod Bay, Long Island Sound	15 – 365	Hard bottom habitats including artificial reefs
Red hake	juvenile	GOM, GB, continental shelf off SNE, and Mid-Atlantic south to Cape Hatteras, including the following estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, and Chesapeake Bay	< 100	Shell fragments, including areas with an abundance of live scallops
Red hake	adult	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras, these estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, Delaware Bay, and Chesapeake Bay	10 - 130	In sand and mud, in depressions
Redfish	juvenile	GOM, southern edge of GB	25 - 400	Silt, mud, or hard bottom
Redfish	adult	GOM, southern edge of GB	50 - 350	Silt, mud, or hard bottom
Rosette skate	juvenile/ adult	Nantucket shoals and southern edge of GB to Cape Hatteras, NC	33-530, most 74-274	Soft substrate, including sand/mud bottoms
Scup	juvenile/adult	GOM to Cape Hatteras, NC, including the following estuaries: MA Bay, Cape Cod Bay to Long Island Sound, Gardiners Bay to Delaware inland bays, and Chesapeake Bay	0-38 for juv 2-185 for adult	Demersal waters north of Cape Hatteras and inshore estuaries (various substrate types)
Silver hake	juvenile	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Casco Bay, ME, MA Bay to Cape Cod Bay	20 – 270	All substrate types
Summer Flounder	juvenile/adult	GOM to Florida – estuarine and over continental shelf to shelf break	0-250	Demersal/estuarine waters, varied substrates. Mostly inshore in summer and offshore in winter.
Smooth skate	juvenile/ adult	Offshore banks of GOM	31–874, most 110-457	Soft mud (silt and clay), sand, broken shells, gravel and pebbles

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
Thorny skate	juvenile/ adult	GOM and GB	18-2000, most 111-366	Sand, gravel, broken shell, pebbles, and soft mud
Tilefish	juvenile/ adult	Outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary	100 - 300	Burrows in clay (some may be semi-hardened into rock)
White hake	juvenile	GOM, southern edge of GB, SNE to Mid-Atlantic and the following estuaries: Passamaquoddy Bay, ME to Great Bay, NH, Massachusetts Bay to Cape Cod Bay	5 - 225	Seagrass beds, mud, or fine grained sand
Winter flounder	adult	GB, inshore areas of GOM, SNE, Mid- Atlantic south to Delaware Bay and the estuaries from Passamaquoddy Bay, ME to Chincoteague Bay, VA	1 - 100	Mud, sand, and gravel
Winter skate	juvenile/ adult	Cape Cod Bay, GB, SNE shelf through Mid-Atlantic Bight to North Carolina; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 371, most < 111	Sand and gravel or mud
Witch flounder	juvenile	GOM, outer continental shelf from GB south to Cape Hatteras	50 - 450 to 1500	Fine grained substrate
Witch flounder	adult	GOME, outer continental shelf from GB south to Chesapeake Bay	25 - 300	Fine grained substrate
Yellowtail flounder	adult	GB, GOM, SNE and Mid-Atlantic south to Delaware Bay and these estuaries: Sheepscot River and Casco Bay, ME, MA Bay to Cape Cod Bay	20 - 50	Sand or sand and mud

6.4.3. Fishery Impact Considerations

Only those gear types which contact the bottom impact physical habitat. As described in section 6.2 and shown in Figure 23; the vast majority of scup landed in the commercial fishery are caught with bottom trawls. About 7% of the scup landed in the commercial fishery in the summer are caught with pots/traps. Other gear types account for small percentages of commercial scup landings and do not contact the bottom (e.g. floating traps, pound nets, hand lines, and gill nets). This section summarizes the impacts of bottom trawls and fish pots/traps on physical habitat.

Otter trawl doors can create furrows in sand, mud, and gravel/rocky substrates. Studies have found furrow depths that range from 2 to 10 cm. Bottom trawl gear can also re-suspend and disperse surface sediments and can smooth topographic features. It can also result in reduced abundance, and in some cases reduced diversity, of benthic species such as nematodes, polychaetes, and bivalves. It can also have short-term positive ecological impacts such as increased food value and increased chlorophyll production in surface sediments. The duration of these impacts varies by sediment type, depth, and frequency of the impact (e.g. a single trawl tow vs. repeated tows). Some studies have documented effects that lasted only a few months. Other

studies found effects that lasted up to 18 months. Impacts tend to have shorter durations in dynamic environments with less structured bottom composition compared to less dynamic environments with structured bottom. Shallower water, stronger bottom currents, more wave action, finer-grained sediments, and higher frequencies of natural disturbance are characteristics that make environments more dynamic (Stevenson et al. 2004).

Compared to otter trawls, Stevenson et al. (2004) summarized fewer studies on fish pots/traps. Morgan and Chuenpagdee (2003) found that the impacts of traps were generally limited to warm or shallow-water environments with rooted aquatic vegetation or "live bottom" environments (e.g. coral reefs). These impacts were of a lesser degree than those from bottom trawls. Eno et al. (2001) found that traps can bend, smother, and uproot sea pens in soft sediments; however, sea pen communities were largely able to recover within a few days of the impact.

The Council developed some fishery management actions with the sole intent of protecting marine habitats. For example, in Amendment 9 to the Mackerel, Squids, and Butterfish FMP, the Council determined that bottom trawls used in Atlantic mackerel, longfin and *Illex* squid, and butterfish fisheries have the potential to adversely affect EFH for some federally-managed fisheries (MAFMC 2008). As a result of Amendment 9, closures to squid trawling were developed for portions of Lydonia and Oceanographer Canyons. Subsequent closures were implemented in these and Veatch and Norfolk Canyons to protect tilefish EFH by prohibiting all bottom trawling activity. In addition, Amendment 16 to the Mackerel, Squid, and Butterfish FMP prohibits the use of all bottom-tending gear in fifteen discrete zones and one broad zone where deep sea corals are known or highly likely to occur (81 *Federal Register* 90246, December 14, 2016).

7. Environmental Consequences of Alternatives

This section summarizes the expected impacts of each of the management alternatives (section 5) on the four VECs:

- Scup and non-target species (section 7.1)
- Human communities (section 7.2)
- Protected species (section 7.3)
- Physical habitat (section 7.4)

This section is organized by VEC. The expected impacts of the alternatives are described in terms of direction (i.e. negative, neutral, or positive) and magnitude (i.e. slight, moderate, or high). Both short and long-term impacts are considered.

When considering impacts on each VEC, the alternatives are compared to the no action alternative (alternative 1) and assessed based on their likely impacts on current environmental and socioeconomic conditions (section 6). The no action alternative assumes that the current management regimes and fishery operations will continue into the future. The no action

alternative does not imply no impact. Impacts to the VECs could still occur if no action is taken, as is explained in more detail in the following sections.

It is not possible to quantify with confidence how fishing effort will change under each alternative; therefore, expected changes are described qualitatively. In general, alternatives which may result in an increase in fishing effort could lead to increased fishing mortality for target and non-target species. An increase in fishing mortality could result in negative impacts if it causes the stock in question to experience overfishing or to become or remain overfished. If an increase in fishing mortality does not result in overfishing or an overfished status, it could have neutral impacts on the stock. Conversely, alternatives which may result in decreased fishing effort may lead to a decrease in fishing mortality and thus neutral or positive impacts for those species, depending on the magnitude of the decrease and on the abundance of the stock in question. For example, a moderate decrease in abundance could have a greater negative impact on an overfished stock than on a rebuilt stock.

Socioeconomic impacts are considered in relation to potential changes in landings, prices, and revenues. Alternatives which could lead to increased landings are generally considered to have positive socioeconomic impacts because they are likely to result in increased revenues. However, some negative socioeconomic impacts could occur, or the magnitude of the positive impacts could be lessened, if an increase in landings leads to a decrease in price or abundance of any of the landed species.

Impacts to protected species are considered in relation to potential changes in fishing effort and the timing, location, and gear types associated with those effort changes. Alternatives which may result in an increase in fishing effort may lead to an increase in the amount of time that fishing gear is in the water and thus could increase the potential for interactions between fishing gear and protected species. Changes in interaction rates with protected species are difficult to predict and may not directly correlate with fishing effort as they are highly dependent on the location and timing of fishing effort. Continued fishing activity, even at *status quo* levels, can result in negative impacts to protected species as it can contribute a species remaining in an endangered or threatened status.

Impacts to physical habitat are considered in a similar manner. Alternatives which may result in a reduction in fishing effort may have neutral to positive impacts on physical habitat. A reduction in fishing effort could lead to a decrease in the amount of time that fishing gear is in the water or a decrease in the area over which the gear is used, thus decreasing the potential for damaging interactions between fishing gear and physical habitat. Either of these changes could result in positive impacts to physical habitat if the habitat is able to recover from past impacts. Some habitats have been heavily fished by multiple fishing fleets over many decades and are unlikely to see a measurable improvement in response to decreases in effort in an individual fishery. In this way, a reduction in fishing effort could lead to neutral impacts on habitat. Alternatives which

may result in increased fishing effort may result in negative impacts to habitat due to an increased potential for damaging interactions with fishing gear.

7.1. Impacts of the Alternatives on Scup and Non-Target Species

None of the alternatives would modify the annual commercial scup quotas. Under all alternatives, these quotas would continue to serve as an upper bound for annual landings, and AMs would continue to be used to address overages when they occur. The annual quotas are based on the best available scientific information and are intended to prevent overfishing.[22] As such, all the alternatives are expected to have positive impacts on the scup stock by continuing to prevent overfishing and maintaining the rebuilt status of the stock.

By serving as an upper bound for landings, the annual commercial quotas will continue to regulate fishing effort. However, in recent years, fishing effort appears to be limited by factors other than the annual quotas. As stated in section 4, commercial scup landings were 20-47% below the commercial quotas during 2011-2016 (Table 5). Some AP members have argued that the restrictive possession limits during the Summer period (Table 4), compared to the Winter I and Winter II periods (Table 2), prevent fishermen from landing high volumes of scup when they are available. These restrictions limit the ability of the fishery to achieve the annual commercial quota. The alternatives considered in this document have implications for these seasonal possession limits. As such, they are expected to result in changes in fishing effort. The following sections summarize the impacts to scup and non-target species that are expected to result from these changes.

When ranked in terms of their impacts on scup and non-target species, alternative 1 is expected to have the most positive impacts, followed by alternatives 2, 3.A, 3.B, and 3.C.

7.1.1. Impacts of Alternative 1 (No Action) on Scup and Non-Target Species

Under alternative 1, no changes would be made to the management measures associated with the commercial scup quota periods. These measures help to ensure that commercial landings are restricted to the seasonal period quotas and to the annual commercial quota, which is based on the best available science and is intended to prevent overfishing. In fact, according to some fishing industry advisors, *status quo* measures may be keeping commercial landings below the annual quotas due to restrictive state possession limits during May-October as a result of restrictive Summer period allocations in some states (section 4.2). As shown in Figure 1, commercial landings have not exceeded any of the seasonal period quotas since 2009; however, landings have generally been closer to the Summer period quota than to either of the Winter period quotas.

As described in section 6.1.1, the scup stock is well above the biomass threshold for overfished status, and has been since 2009. As described in section 6.1.2, none of the common non-target species in the commercial scup fishery are overfished, though some are experiencing overfishing

[22] The process used to develop these quotas is described in detail in MAFMC 2015.

and some have an unknown status. Landings and discards of these species in the scup fishery are accounted for and AMs for most non-target species allow for mitigation of negative impacts of mortality in the scup fishery (and other fisheries).

Alternative 1 is not expected to result in a change in fishing effort or fishing mortality compared to recent levels and is thus not expected to impact the status of the scup stock, or of non-target species. It is not expected to result in any stock becoming overfished. By maintaining the benefits of constraining landings to the quota and regulating fishing effort, alternative 1 is expected to have continued positive impacts on scup and non-target species. Alternative 1 is expected to result in the lowest fishing effort of all the alternatives considered in this document. For this reason, it is expected to have the most positive impacts on scup and non-target species, of all the alternatives.

7.1.2. Impacts of Alternative 2 (Move October to the Winter II Quota Period; Preferred) on Scup and Non-Target Species

Under alternative 2, the month of October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative (alternative 1). The allocations of quota among the periods, the quota rollover provisions, the possession limits, and the state allocations of the Summer quota (managed by the Commission) would remain unchanged (Table 2 - Table 4). This is the Council and Board's preferred alternative.

Under the no action alternative (alternative 1), a variety of possession limits are in effect in October in state waters (Table 4). During this time of year, vessels fishing in Federal waters are bound by the possession limits of the state in which they land their catch. Under alternative 2, October would become part of the Winter II quota period and a possession limit of at least 12,000 pounds would be in effect in Federal waters, depending on the amount of unused quota (if any) that rolls over from Winter I. This would represent a notable increase in the possession limit in October, compared to the no action alternative (Table 4).

As described in section 6.1.1, the NEFSC fall bottom trawl survey and the NEAMAP survey suggest that commercial-sized scup are available in both state and Federal waters during October (Figure 11- Figure 15). This suggests that an increase in the possession limit during October could lead to increased landings. However, the RI DEM trawl survey, the URI GSO Narragansett Bay trawl survey, and the state of New Jersey Ocean Trawl Survey suggest that most of the scup present in state and Federal waters in October are below the commercial size, which would not be expected to lead to an increase in landings as those scup would have to be discarded (Figure 16 - Figure 20).

The increased possession limit in October under alternative 2, coupled with availability of commercial-sized scup as shown in some trawl surveys, is expected to lead to a slight increase in fishing effort and commercial scup landings during the month of October, compared to the no action alternative (alternative 1). This in turn is expected to result in a slight increase in fishing

mortality for scup and non-target species. As described in section 6.1.2, some non-target species (e.g. black sea bass, summer flounder, longfin squid, butterfish, silver hake, and northern and striped sea robins) have similar seasonal distributions to that of scup. These species would be expected to experience a greater increase in fishing mortality due to the increase in fishing effort for scup under alternative 2, compared to other non-target species which have greater differences in their seasonal distributions compared to scup (e.g. spiny dogfish, little skate, and winter skate).

Commercial landings would still be closely monitored and the fishery would close for the remainder of the Winter II period if the Winter II allocation is fully harvested before the end of the year. Annual landings are expected to slightly increase under alternative 2, but not to the extent that they exceed the annual commercial quota. The annual commercial quota is based on the best scientific information available and is intended to prevent overfishing. Thus, the expected increase in fishing effort and fishing mortality under alternative 2 is not expected to jeopardize the sustainability of the scup stock. Due to the availability of scup in October, it is possible that scup landings could increase under alternative 2 with only a minor increase in fishing effort if CPUE is high. If so, alternative 2 could have only minimal impacts on non-target species.

By continuing to prevent overfishing, alternative 2 is expected to have positive impacts on scup and non-target species. Alternative 2 is expected to lead to an increase in fishing effort and fishing mortality compared to alternative 1; therefore, the positive impacts of alternative 2 are expected to be lesser in magnitude than alternative 1. Alternatives 3.A – 3.C are expected to result in a greater increase in fishing effort than alternative 2; therefore, alternative 2 is expected to have greater positive impacts for scup and non-target species than alternatives 3.A – 3.C.

7.1.3. Impacts of Alternative 3 (Move May 1-15 to the Winter I Quota Period and Move October to the Winter II Quota Period) on Scup and Non-Target Species

Alternative 3 includes three sub-alternatives (alternatives 3.A-3.C). The impacts of those alternatives on scup and non-target species are summarized in the following sections.

7.1.3.1. Impacts of Alternative 3.A (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Take No Action on Winter I and Summer Quota Counting Procedures) on Scup and Non-Target Species

Under the no action alternative (alternative 1), the Summer quota period begins May 1. A variety of possession limits are in effect in state waters during the Summer period (Table 4) and vessels fishing in Federal waters are bound by the possession limits of the state in which they land their catch. Under alternative 3.A, May 1-15 would become part of the Winter I quota period and a Federal waters possession limit of 50,000 pounds would be in effect during that time. This represents a sizeable increase in the possession limit, compared to the no action alternative (Table 4). In addition, under alternative 3.A, October would become part of the Winter II period, as opposed to the Summer period under alternative 1. This change in the month of October is

identical to that proposed under alternative 2, the impacts of which are described in the previous section and are not repeated here.

In addition to the changes in the dates of the quota periods, under alternative 3.A the quota counting procedures described in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would remain unchanged. Specifically, under certain circumstances, state-only permit holders fishing in state waters could continue to land scup during April 15-30 if the Winter I fishery is otherwise closed. NMFS would count these landings towards the Summer period landings. Since this measure was implemented in 2003, the Winter I fishery has not closed prior to April 30; therefore, this procedure has never been used. If it were to be used, it could lead to slightly higher landings than would otherwise be allowed if this provision did not exist. This increase in landings would occur during a maximum of two weeks each year. Landings would still be restricted to the quota period allocations and to the annual commercial quota, which is based on the best available science and is intended to prevent overfishing. Thus, this special quota counting provision is expected to have very minimal impacts on scup and non-target species. The impacts of alternative 3.A on scup and non-target species thus derive largely from the change in the start date of the Summer period (described below), and the change in the month of October (described in the previous section).

As described in section 6.1.1, the NEAMAP, RI DEM, URI GSO Narragansett Bay, and MA DMF trawl surveys suggest that commercial-sized scup are present in state and Federal waters during May 1-15 (Figure 4 -Figure 10, Figure 18). The increased possession limit during May 1-15 under alternative 3.A, coupled with availability of commercial-sized scup as shown in these surveys, is expected to lead to a slight increase in fishing effort and fishing mortality during May 1-15 compared to alternatives 1 and 2, and during October compared to alternative 1. If scup CPUE is high during these times of year (as is likely given current abundance levels, the distribution patterns shown in various surveys, and advisor comments), landings could increase with only a minimal increase in fishing effort.

Scup spawn along the inner continental shelf, mostly off southern New England, from May through August, with a peak in June and July. In some locations, such as eastern Long Island bays and Raritan Bay, spawning mostly occurs in May and June (Steimle et al. 1999). Alternative 3.A would move May 1-15 to the Winter I quota period, which would result in higher commercial fishery possession limits during that time. This would be expected to result in a slight increase in fishing mortality during May 1-15, which corresponds with the beginning of the scup spawning season. An increase in fishing mortality could have greater negative impacts during the spawning season than during other times of the year if it negatively impacts recruitment. Under alternative 3.A, this increase in fishing mortality would occur during two weeks (i.e. May 1-15) of the four-month spawning season; therefore, it may not have a notable impact on recruitment. Additionally, the scup fishery (and other fisheries) have operated during this time of year with lower possession limits for decades. Some level of fishing effort will

continue during this time of year, regardless of which alternative is implemented. Thus, if no action is taken, the fishery would continue to have some impacts during the spawning season.

Under alternative 3.A, commercial landings would still be closely monitored and the fishery would close for the remainder of any quota period if the allocation for that period is landed before the end of the year. Annual landings are expected to slightly increase under alternative 3.A, but not to the extent that they exceed the annual commercial quota. The quota is derived from the best scientific information available and is intended to prevent overfishing. In addition, the availability of scup in state and Federal waters as shown in several trawl surveys suggests that landings could increase with only a minor increase in fishing effort if CPUE is high. For these reasons, the expected increase in fishing effort and fishing mortality under alternative 3.A is not expected to jeopardize the sustainability of the scup stock or any non-target stocks. For this Alternative 3.A is thus expected to have positive impacts on scup and non-target stocks. These positive impacts are expected to be lesser in magnitude than those of alternatives 1 and 2 because alternative 3.A is expected to lead to a slight increase in fishing effort and fishing mortality during May 1-15 compared to alternatives 1 and 2, and during October compared to alternative 1. The positive impacts of alternative 3.A on scup and non-target species are expected to be identical to those of alternative 3.C (section 7.1.3.3) and slightly greater in magnitude than those of alternative 3.B (section 7.1.3.2).

7.1.3.2. Impacts of Alternative 3.B (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the End Date of the Winter I and Summer Quota Counting Procedures) on Scup and Non-Target Species

Alternative 3.B is identical to alternative 3.A (the impacts of which are described in the previous section) except that the quota counting procedures described in in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would be modified such that, in certain circumstances, state-only permit holders fishing in state waters could land scup during April 15 – May 15 if the Winter I fishery is otherwise closed (as opposed to April 15-30 under alternative 3.A). NMFS would count these landings towards the Summer period landings. This would allow for landings of scup during up to four weeks (as opposed to up to two weeks under alternative 3.A) in certain circumstances when landings would otherwise be prohibited.

Alternative 3.B would allow for increased fishing effort over a longer period of time than any other alternative considered in this document. For this reason, fishing mortality for scup and non-target species is expected to be greater under alternative 3.B than under any other alternative considered in this document. However, by continuing to restrict landings to the annual commercial quota, which is based on the best available science and is intended to prevent overfishing, and by continuing to address incidental catch of other species through AMs, alternative 3.B is expected to have positive impacts on scup and non-target species. These positive impacts are expected to be lesser in magnitude than the positive impacts of all the other alternatives considered in this document.

7.1.3.3. Impacts of Alternative 3.C (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the Beginning and End Dates of the Winter I and Summer Quota Counting Procedures) on Scup and Non-Target Species

Alternative 3.C is identical to alternative 3.A (the impacts of which are described in section 7.1.2) except that the quota counting procedures described in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would be modified such that, in certain circumstances, state-only permit holders fishing in state waters could land scup during May 1-15 if the Winter I fishery is otherwise closed (as opposed to April 15-30 under alternative 3.A and April 15 – May 15 under alternative 3.B). NMFS would count these landings towards the Summer period landings. Both alternatives 3.A and 3.C would allow for landings by certain vessels during up to two weeks per year when landings would otherwise be prohibited. Alternatives 3.A and 3.C are expected to have identical impacts on scup and non-target species. For the reasons described in section 7.1.3.1, alternative 3.C is expected to have positive impacts on scup and non-target species. These positive impacts are expected to be lesser in magnitude than those of alternatives 1 and 2 because alternative 3.C is expected to lead to a slight increase in fishing effort and fishing mortality during May 1-15 compared to alternatives 1 and 2, and during October compared to alternative 1. The positive impacts of alternative 3.C on scup and non-target species are expected to be slightly greater in magnitude than those of alternative 3.B (section 7.1.3.2).

7.2. Socioeconomic Impacts of the Alternatives

All the alternatives will continue to ensure that the commercial quota is not fully harvested early in the year and that vessels fishing in the winter (typically larger vessels) and vessels fishing in the summer (typically smaller vessels) have access to quota. In this way, all the alternatives are expected to have some positive socioeconomic impacts. They are expected to result in slight differences in the timing of landings throughout the year due to the changes in the quota period dates and the resulting change in the commercial possession limit during May 1-15 and/or October, depending on the alternative. The expected socioeconomic impacts resulting from these slight differences are described in the following sections. When ranked in terms of their socioeconomic impacts, alternative 3.B is expected to have the most positive impacts, followed by alternatives 3.C, 3.A, 2, and 1.

7.2.1. Socioeconomic Impacts of Alternative 1 (No Action)

Under alternative 1, no changes would be made to the management measures associated with the commercial scup quota periods.

In recent years, more vessels landed scup during the summer than during the winter (Figure 21). A higher proportion of smaller vessels landed scup in the summer than during the winter (Figure 22). To the extent that the quota period regulations may have allowed for continued participation by these smaller vessels in the summer months, they may have had positive socioeconomic impacts. Maintaining these regulations would have continued positive socioeconomic impacts, especially in years of low quotas.

From 2011 through 2016, commercial scup landings were 20-47% below the annual commercial quota (Table 5). Some advisors have said that the lower possession limits during the Summer period, compared to during the Winter I and Winter II periods (Table 2 and Table 4) prevented higher landings of scup when they were available and this was part of the reason why landings have been below the annual quota. To the extent that the quota period regulations have restricted landings (and thus revenues), they may have had slight negative socioeconomic impacts.

Overall, the commercial scup quota period regulations have had slight, but mixed (i.e. both positive and negative) socioeconomic impacts. By leaving these regulations unchanged, alternative 1 would have continued mixed, but slight, socioeconomic impacts. Compared to all other alternatives considered in this document, the slight negative socioeconomic impacts of alternative 1 are expected to be greater in magnitude than the slight negative impacts of all the other alternatives because the other alternatives would allow increased landings, and thus increased revenues, compared to alternative 1.

7.2.2. Socioeconomic Impacts of Alternative 2 (Move October to the Winter II Quota Period; Preferred)

Under alternative 2, the month of October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative (alternative 1). The allocations of quota among the periods, the quota rollover provisions, the possession limits, and the state allocations of the Summer quota (managed by the Commission) would remain unchanged (Table 2 - Table 4). This is the Council and Board's preferred alternative.

Alternative 2 would continue to help ensure that the commercial quota is spread throughout the year; thus, it will maintain some of the positive socioeconomic benefits associated with alternative 1 by helping to maintain access to quota for both larger offshore vessels and smaller inshore vessels, especially in years of low quota.

For the reasons described in section 7.1.2, commercial scup landings in October are expected to increase slightly under alternative 2, compared to the no action alternative (alternative 1). Landings are not expected to exceed the annual quota and are thus not expected to increase to the extent that the rebuilt status of the scup stock is threatened. This slight increase in landings is expected to lead to slightly increased revenues for fishermen and commercial fish dealers, and thus slight positive socioeconomic impacts, compared to the no action alternative.

The price of scup is generally inversely correlated with landings (i.e. the price tends to be lower when landings are higher). This relationship is not linear and many other factors also influence price; therefore, it is difficult to predict with confidence how the price could change under alternative 2. If an increase in landings during October results in a decrease in price, then the positive socioeconomic impacts of alternative 2 may be lesser in magnitude. Compared to larger vessels, smaller vessels have a more limited ability to increase the volume of their landings to offset a decrease in price; therefore, a decrease in price may have some negative impacts on

smaller vessels, compared to larger vessels. In October 2011-2015, commercial fish dealers paid an average of $0.77 per pound of scup (Figure 25).

Alternative 2 could result in a decrease in price compared to the no action alternative (alternative 1) and thus could have some negative impacts on smaller vessels compared to larger vessels; however, overall it is expected to have slight positive socioeconomic impacts by allowing for increased landings and increased revenues for the commercial scup fishery as a whole compared to the no action alternative. Alternatives 3.A – 3.C are expected to result in greater increases in landings and revenues than alternative 2, thus the positive socioeconomic impacts of alternative 2 are expected to be lesser in magnitude than those of alternatives 3.A – 3.C.

7.2.3. Socioeconomic Impacts of Alternative 3 (Move May 1-15 to the Winter I Quota Period and Move October to the Winter II Quota Period)

Alternative 3 includes three sub-alternatives (alternatives 3.A-3.C). The socioeconomic impacts of those alternatives are summarized in the following sections.

7.2.3.1. Socioeconomic Impacts of Alternative 3.A (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Take No Action on Winter I and Summer Quota Counting Procedures)

Under alternative 3.A, May 1-15 would become part of the Winter I quota period (as opposed to the Summer period under the no action alternative) and the month of October would become part of the Winter II quota period (as opposed to the Summer period under the no action alternative). The quota counting procedures described in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would remain unchanged. These procedures allow for certain circumstances in which state-only permit holders fishing in state waters can land scup during April 15-30 if the Winter I fishery is otherwise closed. NMFS would count these landings towards the Summer period landings. These provisions were first implemented in 2003 and have not yet been used because the Winter I fishery has not prematurely closed since that time. If these measures were to be used, they would be expected to have slight positive socioeconomic impacts for certain permit holders because they would allow for landings (and revenues from those landings) by those permit holders in certain circumstances when landings would otherwise be prohibited.

For the reasons described in section 7.1.3, commercial scup landings are expected to increase under alternative 3.A compared to the no action alternative (alternative 1), and compared to alternative 2. Landings are expected to be slightly higher because the possession limit would increase for six weeks each year, compared to alternative 1, and for two more weeks than alternative 2. Thus, alternative 3.A is expected to lead to increased revenues and positive socioeconomic impacts compared to alternatives 1 and 2. As described in the following sections, a similar level of increased revenues is expected under alternative 3.C and a greater increase is expected under alternative 3.B. Thus, the positive socioeconomic impacts of alternative 3.A are expected to be similar in magnitude to those of alternative 3.C and lesser in magnitude than those under alternative 3.B.

Under this alternative, landings are not expected to exceed the annual quota and are thus not expected to increase to the extent that the rebuilt status of the scup stock is threatened. As described in the previous section, if increased landings result in a decrease in price, then the positive socioeconomic impacts would be lesser in magnitude. As previously stated, this decrease in price could put smaller vessels at a disadvantage compared to larger vessels as they have less capacity to increase the volume of their landings to offset the decrease in price.

In May 2011-2015, commercial fish dealers paid an average of $0.52 per pound of scup. The average price in October was $0.77 per pound (Figure 25). A variety of factors influence price; thus, it is difficult to predict with confidence how the price could change under alternative 3.A. Because alternative 3.A is expected to lead to a greater increase in landings compared to alternatives 1 and 2, it could lead to a greater decrease in price and could have greater negative impacts for small vessels compared to larger vessels. However; alternative 3.A is expected to lead to increased landings and increased revenues for the commercial fishery as a whole; therefore, overall, it is expected to have slight positive socioeconomic impacts compared to alternatives 1 and 2. As stated above, the positive socioeconomic impacts of alternative 3.A are expected to be similar in magnitude to those of alternative 3.C and lesser in magnitude than those under alternative 3.B.

7.2.3.2. Socioeconomic Impacts of Alternative 3.B (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the End Dates of the Winter I and Summer Quota Counting Procedures)

Alternative 3.B is identical to alternative 3.A (the socioeconomic impacts of which are described in the previous section) except that the dates of the special quota counting procedures would be modified to April 15- May 15, as opposed to April 15-30 under alternative 3.A. These procedures allow for certain circumstances in which state-only permit holders fishing in state waters can land scup during the specified time period if the Winter I fishery is otherwise closed. NMFS would count these landings towards the Summer period landings. Under alternative 3.B, this special quota counting procedure could be used during up to four weeks prior to the start of the Summer quota period (which would become May 16). For the same reasons as described in the previous section, alternative 3.B is expected to have slight positive socioeconomic impacts because it is expected to lead to slightly increased landings and revenues for the fishery as a whole. Alternative 3.B would allow for increased landings (and thus revenues) over a longer period of time than any other alternative considered in this document. For this reason, alternative 3.B is expected to have greater positive socioeconomic impacts than any other alternative considered in this document.

7.2.3.3. Socioeconomic Impacts of Alternative 3.C (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the Beginning and End Dates of the Winter I and Summer Quota Counting Procedures)

Alternative 3.C is identical to alternative 3.A (the socioeconomic impacts of which are described in section 7.2.3.1) except that the dates of the special quota counting procedures would be

modified to May 1-15, as opposed to April 15-30 under alternative 3.A. Under alternative 3.C, this quota counting procedure could be used during two weeks prior to the start of the Summer quota period (which would become May 16). The length of the period for the special quota counting procedure would be two weeks under both alternatives 3.A and 3.C. These quota counting procedures allow for certain circumstances in which state-only permit holders fishing in state waters can land scup during the specified time period if the Winter I fishery is otherwise closed. NMFS would count these landings towards the Summer period landings. Alternative 3.C is expected to have identical socioeconomic impacts as alternative 3.A (i.e. slight positive impacts; section 7.2.3.1). The differences between alternatives 3.A and 3.C are largely administrative in nature and are thus expected to result in negligible differences in socioeconomic impacts. The positive socioeconomic impacts of alternative 3.C are expected to be lesser in magnitude than alternative 3.B, but greater in magnitude than alternatives 1 and 2.

7.3. Impacts of the Alternatives on Protected Species

The following sections summarize the expected impacts of the alternatives on protected species. When ranked in terms of their expected impacts, alternative 3.B has the highest potential for negative impacts on protected species, followed by alternatives 3.A, 3.C, 2, and 1.

7.3.1. Impacts of Alternative 1 (No Action) on Protected Species

The scup fishery is prosecuted primarily with bottom trawl gear. As described in 6.3, there are numerous protected species (i.e. MMPA protected and ESA listed) that are vulnerable to interactions with this gear type, with interactions often resulting in the serious injury or mortality to the species. Based on this, the scup fishery is likely to result in some level of negative impacts to protected species. Taking into consideration fishing behavior/effort under the no action alternative, as well the fact that interaction risks with protected species are strongly associated with amount, time, and location of gear in the water (with vulnerability of an interaction increasing with increases in of any or all of these factors), the no action alternative is expected to have slight negative impacts on protected species for the reasons described below.

The no action alternative will not result in any changes to the management measures for the commercial scup fishery. As a result, fishing behavior and effort are expected to remain similar to recent patterns of fishing effort. Specifically, the number of bottom trawls, tow times, and areas fished are not expected change significantly from current operating conditions. As noted above, interactions risks with protected species are strongly associated with amount, time, and location of gear in the water. Continuation of *status quo* fishing behavior/effort is not expected to change any of these operating conditions and therefore, relative to current conditions, new or elevated (e.g. more gear, longer tow times) interaction risks to protected species are not expected. Based on this, the impacts of the no action alternative on protected species are expected to be slight negative. Relative to alternatives 2 and 3, which are expected to result in slight increases in effort and therefore, an elevated risk of an interaction with a protected species, alternative 1 is expected to result in slight positive impacts to protected species.

7.3.2. Impacts of Alternative 2 (Move October to the Winter II Quota Period; Preferred) on Protected Species

Under alternative 2, October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative (alternative 1; section 5.2). This is the Council and Board's preferred alternative.

For the reasons described in section 7.1.2, alternative 2 is expected to lead to a slight increase in fishing effort in October, compared to the no action alternative (alternative 1). An increase in fishing effort could lead to an increase in interactions between fishing gear and those protected species which co-occur in the affected area during the period of increased effort (i.e. October). As previously stated, interaction risks with protected species are strongly associated with amount, time, and location of gear in the water. The vulnerability of an interaction increases with increases in any of these factors. As effort has the potential to increase under alternative 2, the number of bottom trawls, tow times, and/or area fished could also increase relative to current conditions. Thus, the interaction risk to protected species has the potential to also increase. Because effort is only expected to increase during October, alternative 2 is expected to result in slight negative impacts to protected species, compared to recent conditions.

Most of the protected species which may be impacted by commercial scup fisheries (Table 8) are present in the affected area during the month of October and thus may be subject to these slight negative impacts. Those that are not present during October (specifically, short beaked common dolphins, several bottlenose dolphin stocks, harp and hooded seals, and Atlantic salmon, as described in section 6.3 and Palmer 2017) are not expected to experience any change in impacts under alternative 2 compared to current conditions.

Under alternative 2, effort is expected to be higher than under the no action alternative but lower than under alternative 3. Therefore, the expected negative impacts of alternative 2 on protected species are expected to be greater in magnitude than under alternative 1 but lesser in magnitude than under alternative 3.

7.3.3. Impacts of Alternative 3 (Move May 1-15 to the Winter I Quota Period and Move October to the Winter II Quota Period) on Protected Species

Alternative 3 includes three sub-alternatives (alternatives 3.A-3.C). The impacts of those alternatives on protected species are summarized in the following sections.

7.3.3.1. Impacts of Alternative 3.A (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Take No Action on Winter I and Summer Quota Counting Procedures) on Protected Species

Under alternative 3.A, May 1-15 would become part of the Winter I quota period (as opposed to the Summer period under the no action alternative) and October would become part of the Winter II quota period (as opposed to the Summer period under the no action alternative). The

quota counting procedures described in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would remain unchanged.

For the reasons described in section 7.1.3, under alternative 3.A fishing effort for scup is expected to increase during May 1-15 and October compared to alternative 1 (the no action alternative) and during May 1-15 compared to alternative 2. An increase in fishing effort could lead to an increase in interactions between fishing gear and protected species. Table 8 lists protected species which may be impacted by commercial scup fisheries. Nearly all of those species can be found in the affected area during either May or October and thus may be impacted by this increase in effort (exceptions include several bottlenose dolphin stocks, , and Atlantic salmon, as described in section 6.3 and in Palmer 2017). As noted above, interaction risks with protected species are strongly associated with the amount, time, and location of gear in the water. Vulnerability of an interaction increases with increases in of any of these factors. As effort has the potential to increase under alternative 3, the number of bottom trawls, tow times, and/or areas fished have the potential to also increase relative to current operating conditions. Thus, the interaction risk to protected species has the potential to increase. Based on this information, alternative 3 is expected to result in negative impacts to protected species.

Because alternative 3.A is expected to lead to increased fishing effort for scup during the first two weeks of May and during October compared to alternative 1 (the no action alternative), and during the first two weeks of May compared to alternative 2, it is expected to have greater negative impacts on protected species than these alternatives. The differences between alternatives 3.A and 3.C are largely administrative in nature; therefore, these two alternatives are expected to have similar impacts to protected species. Alternative 3.B is expected to lead to a greater increase in fishing effort than alternative 3.A, therefore the negative impacts of alternative 3.A on protected species are expected to lesser in magnitude than those under alternative 3.B.

7.3.3.2. Impacts of Alternative 3.B (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the End Dates of the Winter I and Summer Quota Counting Procedures) on Protected Species

Alternative 3.B proposes the same changes to the quota period dates as alternative 3.A (the impacts of which are described in the previous section). In addition, under alternative 3.B, the dates of the special quota counting procedures would be modified to April 15- May 15, as opposed to April 15-30 under alternative 3.A. Under alternative 3.B, this special quota counting procedure could be used during up to four weeks prior to May 16 (compared to up two weeks under alternatives 3.A and 3.C).

As described in section 7.1.3.2, due to this difference in the dates for the special quota counting procedures, alternative 3.B could allow for slightly increased fishing effort compared to alternative 3.A, and compared to all the other alternatives in this document. This increase would be very slight compared to alternatives 3.A and 3.C. For the same reasons as described in section

7.3.3.1, alternative 3.B is expected to have slight negative impacts on protected species. Because the potential increase in fishing effort under alternative 3.B is greater than under all other alternatives in this document, the magnitude of the negative impacts to protected species under alternative 3.B is expected to be greater than under all other alternatives.

7.3.3.3. Impacts of Alternative 3.C (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the Beginning and End Dates of the Winter I and Summer Quota Counting Procedures) on Protected Species

Alternative 3.C proposes the same changes to the quota period dates as alternatives 3.A and 3.B (the impacts of which are described in the previous sections). In addition, under alternative 3.C, the dates of the special quota counting procedures would be modified to May 1-15, as opposed to April 15-30 under alternative 3.A. Under both alternatives 3.A and 3.C, this special quota counting procedure could be used for up to two weeks each year. The differences between alternatives 3.A and 3.C are largely administrative in nature; thus, the expected impacts of alternative 3.C on protected species are identical to those of alternative 3.A (i.e. negative impacts; section 7.3.3.1).

Because alternative 3.C is expected to lead to increased fishing effort for scup during the first two weeks of May and during October compared to alternative 1 (the no action alternative), and during the first two weeks of May compared to alternative 2, it is expected to have greater negative impacts on protected species than these alternatives. Alternative 3.B is expected to lead to a greater increase in fishing effort than alternative 3.C, therefore the negative impacts of alternative 3.C on protected species are expected to lesser in magnitude than those under alternative 3.B. The only substantive difference between alternatives 3.B and 3.A/3.C is that the special quota counting procedure could be used for up to four weeks under alternative 3.B, compared to up to two weeks under alternatives 3.A and 3.C.

7.4. Impacts of the Alternatives on Physical Habitat

The following sections summarize the expected impacts of the alternatives on physical habitat. When ranked in terms of their impacts on physical habitat, alternative 3.B is expected to have the most negative impacts, followed by alternatives 3.C, 3.A, 2, and 1.

7.4.1. Impacts of Alternative 1 (No Action) on Physical Habitat

Under alternative 1, no changes would be made to the management measures associated with the commercial scup quota periods. A variety of factors influence fishing effort, including the quota period allocations and possession limits, as well as other factors such as the overall annual quota and the price and availability of scup and other targeted species. To the extent that the commercial scup quota period regulations have restricted fishing effort, they have also limited the potential for interactions between fishing gear and physical habitat. Alternative 1 is not expected to change fishing effort compared to recent levels. Fishing effort would be expected to continue at recent levels in areas that have been impacted by the scup fishery, and by other

fisheries for decades. This continued level of fishing effort is not expected to result in additional negative impacts to these habitats that are already regularly impacted by fishing gear. For these reasons, alternative 1 is expected to have neutral impacts on physical habitat.

7.4.2. Impacts of Alternative 2 (Move October to the Winter II Quota Period; Preferred) on Physical Habitat

Under alternative 2, October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative (alternative 1). The allocations of quota among the periods, the quota rollover provisions, the possession limits, and the state allocations of the Summer quota (managed by the Commission) would remain unchanged (Table 2 - Table 4). This is the Council and Board's preferred alternative.

For the reasons described in section 7.1.2, alternative 2 is expected to lead to a slight increase in fishing effort for scup, compared to the no action alternative (alternative 1). An increase in fishing effort could lead to an increase in interactions between fishing gear and physical habitat; therefore, alternative 2 is expected to have slight negative impacts on physical habitat, compared to the no action alternative. These impacts are expected to be minor because they would occur during one month of the year and fishing effort would still be restricted by the annual quota, the seasonal period quotas, and the possession limits. In addition, this increase in effort is expected to occur in areas that are already impacted by the commercial scup fishery and other fisheries year-round. These areas are not expected to be further degraded by the increase in effort expected under this alternative.

7.4.3. Impacts of Alternative 3 (Move May 1-15 to the Winter I Quota Period and Move October to the Winter II Quota Period) on Physical Habitat

Alternative 3 includes three sub-alternatives (alternatives 3.A-3.C). The impacts of those alternatives on physical habitat are summarized in the following sections.

7.4.3.1. Impacts of Alternative 3.A (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Take No Action on Winter I and Summer Quota Counting Procedures) on Physical Habitat

Under alternative 3.A, May 1-15 would become part of the Winter I quota period (as opposed to the Summer period under the no action alternative) and October would become part of the Winter II quota period (as opposed to the Summer period under the no action alternative). The quota counting procedures described in section 4.2 and at 50 CFR 648.123(a)(2)(iv) would remain unchanged.

For the reasons described in section 7.1.3, fishing effort is expected to slightly increase under alternative 3.A, compared to the no action alternative (alternative 1) and alternative 2. The magnitude of the increase is expected to be similar to that under alternative 3.C, but lesser than that under alternative 3.B. An increase in fishing effort could lead to an increase in interactions between fishing gear and physical habitat; therefore, alternative 3.A is expected to have slight

negative impacts on physical habitat, compared to alternatives 1 and 2. These impacts are expected to be similar in magnitude to those of alternative 3.C, but lesser in magnitude than those of alternative 3.B.

These impacts are expected to be minor because they would occur during six weeks of the year and fishing effort would still be restricted by the annual quota, the seasonal period quotas, and the possession limits. In addition, this increase in effort is expected to occur in areas that are already impacted by the scup fishery and other fisheries year-round. These areas are not expected to be further degraded by the increase in effort expected under this alternative.

7.4.3.2. Impacts of Alternative 3.B (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the End Dates of the Winter I and Summer Quota Counting Procedures) on Physical Habitat

Alternative 3.B is identical to alternative 3.A (the impacts of which are described in the previous section) except that the dates of the special quota counting procedures would be modified to April 15- May 15, as opposed to April 15-30 under alternative 3.A. Under alternative 3.B, this special quota counting procedure could be used during up to four weeks, as opposed to two weeks under alternatives 3.A and 3.C. For the reasons described in section 7.1.3.2, alternative 3.B could allow for slightly increased fishing effort and thus slight negative impacts to physical habitat compared to all the other alternatives. These impacts are expected to be minor because they would occur during six weeks of the year and fishing effort would still be restricted by the annual quota, the seasonal period quotas, and the possession limits. In addition, this increase in effort is expected to occur in areas that are already impacted by the scup fishery and other fisheries year-round. These areas are not expected to be further degraded by the increase in effort expected under this alternative.

7.4.3.3. Impacts of Alternative 3.C (Move May 1-15 to the Winter I Quota Period, Move October to the Winter II Quota Period, and Modify the Beginning and End Dates of the Winter I and Summer Quota Counting Procedures) on Physical Habitat

Alternative 3.C is identical to alternative 3.A (the impacts of which are described in section 7.4.3.1) except that the dates of the special quota counting procedures would be modified to May 1-15, as opposed to April 15-30 under alternative 3.A. For the reasons described in section 7.1.3.3, alternative 3.C is expected to have identical impacts on fishing effort as alternative 3.A; therefore, it is expected to have identical impacts on physical habitat (i.e. slight negative impacts; section 7.4.3.1).

7.5. Cumulative Effects

A cumulative effects analysis is required by the Council on Environmental Quality (CEQ; 40 CFR part 1508.7). The purpose of cumulative effects analysis 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. A formal cumulative impact assessment is not required as part of an environmental assessment under NEPA if the significance of cumulative impacts have been considered (U.S. EPA 1999). The following sections address the significance of the expected cumulative impacts as they relate to the VECs considered in this document.

7.5.1. Consideration of the VECs

This section summarizes the significance of cumulative effects on the four VECs:

- Scup and non-target species
- Human communities
- Protected species
- Physical habitat

7.5.2. Geographic Boundaries

In a broad sense, the western North Atlantic Ocean is the core geographic scope for the VECs. The core geographic scope for the managed species, including managed non-target species, are their associated management units (e.g. state and federal waters from Maine to Cape Hatteras, North Carolina, for scup). For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat utilized by scup and non-target species in the Western Atlantic Ocean. The core geographic scope for protected species is the range of those species in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of scup in coastal states from Maine through North Carolina (section 6.2).

7.5.3. Temporal Boundaries

The temporal scope of past and present actions which impact the VECs is primarily focused on actions that occurred after 1996, when the Council added scup to the Summer Flounder FMP. For protected species, the scope of past and present actions is on a species-by-species basis (section 6.3) and is largely 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 three years (2020) into the future. The dynamic nature of resource management for scup and non-target 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.

7.5.4. Actions other than Those Considered in this Document

The impacts of the alternatives considered in this document are described in section 7. Table 20 summarizes meaningful past, present, or reasonably foreseeable future actions which may impact the VECs in addition to the alternatives considered in this document. Table 20 also includes qualitative descriptions of the impacts of those actions. Impacts of these actions are too complex to be quantified in a meaningful way.

The MSA is the statutory basis for Federal fisheries management. The past and ongoing management practices of the Mid-Atlantic Council have generally resulted in positive impacts on the health of the managed stocks. The Council has taken numerous actions to manage these fisheries through amendments and framework adjustments, examples of which are listed in Table 20. For example, the specifications process for setting ACLs, as required by the MSA, provides the opportunity for the Council and NMFS to regularly assess the status of managed fisheries (including the scup fisheries) and to make necessary adjustments to ensure a reasonable expectation of meeting the objectives of the FMPs.

The cumulative impacts of past, present, and reasonably foreseeable future Federal fishery management actions on the VECs are expected to result in long-term sustainability of the managed stocks. These actions should, in the long-term, promote positive impacts on human communities, especially those communities that are economically dependent on the managed stocks. Many past fishery management actions resulted in reduced fishing effort and/or reduced impacts of fishing through access limitation, vessel upgrade restrictions, area and gear restrictions, EFH designations, AMs, and other measures. These measures benefitted the managed species, non-target species, protected species, and habitat. Human communities benefited in the long term from the continued productivity of managed stocks; however, some of these measures caused short-term negative economic impacts (Table 20).

Non-fishing activities such as climate change, point and non-point source pollution, shipping, dredging, storm events, and other factors affect the physical and biological dimensions of the environment. Many of these non-fishing activities are widespread, can have localized impacts to habitat, and have resulted in habitat loss for some species. Such activities include at-sea disposal of sediments and other materials, oil and mineral resource exploration, aquaculture, installation of wind turbines, bulk transportation of petrochemicals, and other activities, as well as natural events such as storms. Activities that introduce chemical pollutants, sewage, or suspended sediments into the marine environment, or result in changes in water temperature, salinity, or dissolved oxygen all pose risks to the VECs.

Some non-fishing human activities such as agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material tend to be localized in nearshore areas and marine project areas where they occur. Wherever multiple activities co-occur, they can work additively or synergistically to decrease habitat quality and may indirectly impact the sustainability of the managed species, non-target species, and protected species. Decreased habitat suitability tends to reduce the tolerance of these species to the impacts of fishing effort. Impacts to the affected species and their habitats on a population level are generally minor since many of these species have limited or minor exposure to these local non-fishing perturbations. Mitigation through regulations that reduce fishing effort can negatively impact human communities.

Federal agencies wishing to conduct various types of non-fishing activities must examine the potential impacts on the VECs. The MSA (50 CFR 600.930) imposes an obligation on other

Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight regional fishery management councils are engaged in this review process by submitting comments and recommendations on any Federal or state action that may affect habitat, including EFH, for managed species. NMFS also reviews impacts of certain activities regulated by Federal, state, and local authorities as required by section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act.

In addition, under the Fish and Wildlife Coordination Act (section 662), "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the U.S., or by any public or private agency under federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the" activity is taking place. This act provides another avenue for review of actions by other Federal and state agencies that may impact species that NMFS and the Councils manage.

NMFS and the USFWS share responsibility for implementing the ESA. The ESA requires NMFS to designate critical habitat and to develop and implement recovery plans for threatened and endangered species. Critical habitat includes areas that contain physical or biological features essential to the conservation of protected species, which may require special management considerations or protection. The ESA provides an avenue for NMFS to review actions by other entities that may impact endangered and protected species whose management units are under the jurisdiction of NMFS.

7.5.4.1. Climate Change

Each VEC is impacted to some degree by global climate change. Climate shifts may alter the pattern and strength of ocean currents; change the rate of freshwater inflows; influence water temperature, acidity, and salinity; and have other impacts. These changes affect the physical environment directly, which in turn may shape the suitability of local habitats for marine species. Changes in the abundance and distribution of marine species will affect fishing communities. For example, if a species important to a particular community declines in abundance or shifts in distribution due to environmental factors, that community may experience negative impacts. Positive impacts could occur if the abundance of targeted species increases. The direct impacts to the VECs will vary and are associated with some uncertainty.

NMFS scientists developed an assessment of the climate vulnerability of 82 fish and invertebrate species in the northeast region. The authors found that "the overall climate vulnerability is high to very high for approximately half the species assessed; diadromous and benthic invertebrate species exhibit the greatest vulnerability. In addition, the majority of species included in the assessment have a high potential for a change in distribution in response to projected changes in

climate. Negative effects of climate change are expected for approximately half of the species assessed, but some species are expected to be positively affected (e.g. increase in productivity or move into the region)" (Hare et al. 2016). Scup were determined to have a moderate vulnerability to climate change. Scup have a high exposure to the effects of climate change because early life stages are typically found in coastal, nearshore waters, and adults seasonally migrate between inshore and offshore waters. However, because they are mobile and are "habitat generalists", scup may be able to shift their distribution in response to changing temperatures and other factors related to climate change.

Table 18: Impacts of past (P), present (Pr), and reasonably foreseeable future (RFF) actions, not including those actions considered in this document, on the VECs.

Action	Description	Impacts on Scup and Non-Target Species	Impacts on Human Communities	Impacts on Protected Species	Impacts on Habitat and EFH
P, Pr Original FMPs & subsequent amendments & frameworks	Established commercial and recreational management measures	**Indirect Positive** Regulatory tool to rebuild and manage stocks and regulate fishing effort	**Indirect Positive** Benefited domestic businesses	**Indirect Positive** Reduced fishing effort; implemented gear requirements	**Indirect Positive** Reduced fishing effort; implemented gear requirements
P, Pr, RFF Annual specifications for managed species	Establish quotas, recreational harvest limits, and other fishery regulations	**Indirect Positive** Regulatory tool to specify catch limits, and other regulations in response to annual stock updates	**Indirect Positive** Benefited domestic businesses	**Indirect Positive** Regulate fishing effort	**Indirect Positive** Regulate fishing effort
P, Pr, RFF Standardized Bycatch Reporting Methodology	Established acceptable level of precision and accuracy for monitoring of bycatch in fisheries	**Neutral** May improve data quality for monitoring total removals	**Uncertain – Likely Indirect Negative** May impose an inconvenience on vessel operations	**Neutral** Will not affect fishing effort or fishing gears used	**Neutral** Will not affect fishing effort or fishing gears used
P, Pr, RFF Agricultural runoff	Nutrients applied to agricultural land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality can lead to reduced abundances of target species	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality

Action	Description	Impacts on Scup and Non-Target Species	Impacts on Human Communities	Impacts on Protected Species	Impacts on Habitat and EFH
P, Pr, RFF Port maintenance	Dredging of coastal, port and harbor areas for port maintenance	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects	**Direct and Indirect Negative** Potential interactions with protected species; reduced habitat quality/availability; dependent on mitigation efforts	**Uncertain – Likely Direct Negative** Dependent on mitigation effects
P, Pr, RFF Beach nourishment	Offshore mining and placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for mining companies and tourism; possibly negative for fishing industry if negative habitat impacts result in reduced availability and reduced landings	**Direct and Indirect Negative** Reduced habitat quality; dredge interactions; dependent on mitigation efforts	**Direct Negative** Reduced habitat quality
P, Pr, RFF Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for some interests, potential displacement for others	**Direct and Indirect Negative** Reduced habitat quality/availability; potential for interactions (ship strikes) with protected species	**Direct Negative** Reduced habitat quality
P, Pr, RFF Offshore disposal of dredged materials	Disposal of dredged materials	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality can lead to decreased abundance of target species	**Indirect Negative** Reduced habitat quality; dependent on mitigation efforts	**Direct Negative** Reduced habitat quality

Action	Description	Impacts on Scup and Non-Target Species	Impacts on Human Communities	Impacts on Protected Species	Impacts on Habitat and EFH
P, Pr, RFF Deep Sea Corals Amendment to the Mackerel, Squid, and Butterfish FMP	Prohibits the use of bottom-tending gear in coral protection zones	**Direct Positive** Fishing effort and gear restrictions may result in increased productivity	**Mixed** Negative impacts to fishermen who previously used bottom-tending gear in protected areas; positive impacts if leads to increased productivity of target species.	**Uncertain, likely mixed** Possible reduced gear interactions in protected areas; impacts depend on how/where effort is shifted	**Direct Positive** Reduced gear impacts in protected areas
RFF Unmanaged Forage Omnibus Amendment	Restricts landings/possession in Mid-Atlantic Federal waters of over 50 previously unmanaged species	**Indirect Positive** Will slightly reduce fishing mortality for a variety of prey species	**Mixed** Positive impacts from maintaining prey for target species. Negative impacts for fishermen who already harvest unmanaged forage species in high volumes.	**Indirect Positive** Will help to maintain prey base for several protected species.	**Neutral** Is not likely to result in a substantial change in fishing effort.
RFF Convening of Take Reduction Teams (periodically)	Recommend measures to reduce mortality and injury to marine mammals and sea turtles	**Indirect Positive** Reducing amount of gear in water could reduce bycatch	**Indirect Negative** Reducing amount of gear in water could reduce revenues	**Indirect Positive** Reducing amount of gear in water could reduce gear impacts	**Indirect Positive** Reducing amount of gear in water could reduce gear impacts

7.5.5. 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, 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.

7.5.5.1. Magnitude and Significance of Cumulative Effects on Scup and Non-Target Species

Those past, present, and reasonably foreseeable future actions which may impact scup and non-target species, and the direction of those impacts, are summarized in Table 19. The indirectly negative actions described in Table 19 are localized in nearshore and marine areas where the projects occur; therefore, the magnitude of those impacts on the managed species is expected to be limited due to limited exposure to the populations at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on productivity of the managed species is not quantifiable.

NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources under NMFS' jurisdiction.

Past fishery management actions taken through the respective FMPs and the annual specifications process have had a positive cumulative effect on the managed species. It is anticipated that the future management actions described in Table 19 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 the productivity of managed species depends. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to scup and non-target species have had positive cumulative effects.

Catch limits, commercial quotas and recreational harvest limits for each of the managed species have been specified to ensure that these stocks are managed sustainably and that measures are consistent with FMP objectives under the guidance of the MSA. The impacts of annual specification of management measures are largely dependent on how effective those measures are in meeting the objectives of preventing overfishing and achieving optimum yield, and on the extent to which mitigating measures are effective. The proposed actions described in this document would positively reinforce the past and anticipated positive cumulative effects on the managed species by achieving the objectives specified in the respective FMPs. Therefore, the proposed action would not have any significant effect on managed species individually or in conjunction with other anthropogenic activities (Table 19).

Table 19: Summary of the effects of past, present, and reasonably foreseeable future actions on scup and non-target species.

Action	Past to Present	Reasonably Foreseeable Future
Original FMPs and subsequent amendments and frameworks	Indirect Positive	
Annual specifications	Indirect Positive	
Standardized Bycatch Reporting Methodology	Neutral	
Agricultural runoff	Indirect Negative	
Port maintenance	Likely Indirect Negative	
Beach nourishment – offshore sand mining	Indirect Negative	
Beach nourishment – sand placement	Indirect Negative	
Marine transportation	Indirect Negative	
Offshore disposal of dredged materials	Indirect Negative	
Renewable & non-renewable offshore & nearshore energy development	Likely Indirect Negative	
Deep Sea Corals Amendment		Direct Positive
Unmanaged Forage Omnibus Amendment		Indirect Positive
Convening Gear Take Reduction Teams (periodically)		Indirect Positive
Summary of past, present, and future actions, excluding those proposed in this document	Overall, actions have had or will have positive impacts on scup and non-target species	

7.5.5.2. Magnitude and Significance of Cumulative Effects on Human Communities

Those past, present, and reasonably foreseeable future actions which may impact human communities and the direction of those potential impacts are summarized in Table 22. The indirectly negative actions described in Table 22 are localized in nearshore areas and marine project areas where they occur; therefore, the magnitude of those impacts on human communities is expected to be limited in scope. Those actions may displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal ecosystem may larger in magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is not quantifiable. NMFS has several means under which it can review non-fishing actions of other Federal or state agencies prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on human communities.

Past fishery management actions taken through the respective FMPs and the annual specifications process have had both positive and negative cumulative effects by benefiting domestic fisheries through sustainable fishery management practices while also sometimes

reducing the availability of the resource to fishery participants. Sustainable management practices are, however, expected to yield broad positive impacts to fishermen, their communities, businesses, and the nation as a whole. It is anticipated that the future management actions described in Table 22 will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on the human communities could occur if management actions result in reduced revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had overall positive cumulative effects.

Catch limits, commercial quotas, and recreational harvest limits for managed species have been specified to ensure that these stocks are managed in a sustainable manner and that management measures are consistent with the objectives of the FMPs under the guidance of the MSA. The impacts on the managed species are largely dependent on how effective those measures are in meeting their intended objectives and the extent to which mitigating measures are effective.

Overages may alter the timing of commercial fishery revenues such that revenues can be realized a year earlier. Impacts to some fishermen may be caused by unexpected reductions in their opportunities to earn revenues from commercial fisheries in the year during which the overages are deducted. Similarly, recreational fisheries may have decreased harvest opportunities due to reduced harvest limits because of overages and more restrictive management measures (e.g. minimum fish size, possession limits, fishing seasons) implemented to address overages.

Despite the potential for negative short-term impacts on human communities, positive long-term impacts are expected due to the long-term sustainability of the managed stocks. Overall, the proposed actions described in this document would not change the past and anticipated cumulative effects on human communities and thus, would not have any significant effect on human communities individually, or in conjunction with other anthropogenic activities (Table 22).

Table 20: Summary of the effects of past, present, and reasonably foreseeable future actions on human communities.

Action	Past to Present	Reasonably Foreseeable Future
Original FMPs and subsequent amendments and frameworks	Indirect Positive	
Annual specifications	Indirect Positive	
Standardized Bycatch Reporting Methodology	Likely Indirect Negative	
Agricultural runoff	Indirect Negative	
Port maintenance	Uncertain – Likely Mixed	
Beach nourishment – offshore sand mining	Mixed	
Beach nourishment – sand placement	Positive	
Marine transportation	Mixed	
Offshore disposal of dredged materials	Indirect Negative	
Renewable & non-renewable offshore & nearshore energy development	Likely Mixed	
Deep Sea Corals Amendment		Mixed
Unmanaged Forage Omnibus Amendment		Mixed
Convening Gear Take Reduction Teams (periodically)		Indirect Negative
Summary of past, present, and future actions, excluding those proposed in this document	Overall, actions have had, or will have, positive impacts on human communities.	

7.5.5.3. Magnitude and Significance of Cumulative Effects on Protected Species

Those past, present, and reasonably foreseeable future actions which may impact protected species, and the direction of those impacts, are summarized in Table 21. The indirectly negative actions described in Table 21 are localized in nearshore and marine project areas where they occur; therefore, the magnitude of those impacts on protected species is expected to be limited due to limited exposure of the populations at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on protected species is not quantifiable.

NMFS has several means under which it can review non-fishing actions of other Federal or state agencies that may impact protected species prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on protected species under NMFS' jurisdiction.

Past fishery management actions taken through the respective FMPs and the annual specifications process have had positive cumulative effects on protected species through the reduction of fishing effort (and thus reduction in potential interactions) and implementation of gear requirements. It is anticipated that the future management actions described in Table 21 will

result in additional indirect positive effects on protected species. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to protected species have had positive cumulative effects.

The proposed actions described in this document would not change the past and anticipated cumulative effects on protected species and thus would not have any significant effect on protected species individually or in conjunction with other anthropogenic activities (Table 21).

Table 21: Summary of the effects of past, present, and reasonably foreseeable future actions on protected species.

Action	**Past to Present**	**Reasonably Foreseeable Future**
Original FMP and subsequent amendments and frameworks	Indirect Positive	
Annual specifications	Indirect Positive	
Standardized Bycatch Reporting Methodology	Neutral	
Agricultural runoff	Indirect Negative	
Port maintenance	Direct and Indirect Negative	
Beach nourishment – offshore sand mining	Direct and Indirect Negative	
Beach nourishment – sand placement	Indirect Negative	
Marine transportation	Direct and Indirect Negative	
Offshore disposal of dredged materials	Indirect Negative	
Renewable & non-renewable offshore & nearshore energy development	Likely Direct and Indirect Negative	
Deep Sea Corals Amendment		Likely mixed
Unmanaged Forage Omnibus Amendment		Indirect Positive
Convening Gear Take Reduction Teams (periodically)		Indirect Positive
Summary of past, present, and future actions, excluding those proposed in this document	Overall, actions have had, or will have, positive impacts on protected species	

7.5.5.4. Magnitude and Significance of Cumulative Effects on Physical Habitat

Those past, present, and reasonably foreseeable future actions which may impact habitat, and the direction of those potential impacts, are summarized in Table 22. The direct and indirect negative actions described in Table 22 are localized in nearshore and marine project areas where they occur; therefore, the magnitude of those impacts on habitat is expected to be limited due to limited exposure of habitat at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on habitat is not quantifiable.

NMFS has several means under which it can review non-fishing actions of other Federal or state agencies that may impact NMFS' managed resources and the habitat on which they rely prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of direct and indirect negative impacts those actions could have on habitat utilized by species under NMFS' jurisdiction.

Past fishery management actions taken through the respective FMPs and the annual specifications process 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 have reduced impacts on habitat. EFH and Habitat Areas of Particular Concern were designated for the managed resources. It is anticipated that the future management actions described in Table 22 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. These impacts could be broad in scope.

All the VECs are interrelated; therefore, the linkages among habitat quality, managed species and non-target species productivity, and associated fishery yields should be considered. For habitat, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and will likely continue to be, taken to improve the condition of habitat. 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 and Council management. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had neutral to positive cumulative effects.

The proposed actions described in this document would not significantly change the past and anticipated cumulative effects on habitat and thus would not have any significant effect on habitat individually or in conjunction with other anthropogenic activities (Table 22).

Table 22: Summary of the effects of past, present, and reasonably foreseeable future actions on habitat and EFH.

Action	Past to Present	Reasonably Foreseeable Future
Original FMPs and subsequent amendments and frameworks	Indirect Positive	
Annual specifications	Indirect Positive	
Standardized Bycatch Reporting Methodology	Neutral	
Agricultural runoff	Direct Negative	
Port maintenance	Likely Direct Negative	
Beach nourishment – offshore sand mining	Direct Negative	
Beach nourishment – sand placement	Direct Negative	
Marine transportation	Direct Negative	
Offshore disposal of dredged materials	Direct Negative	
Renewable & non-renewable offshore & nearshore energy development	Likely Direct Negative	
Deep Sea Corals Amendment		Direct Positive
Unmanaged Forage Omnibus Amendment		Neutral
Convening Gear Take Reduction Teams (periodically)		Indirect Positive
Summary of past, present, and future actions, excluding those proposed in this document	Overall, actions have had or will have neutral to positive impacts on habitat	

7.5.5.5. Cumulative Effects of Proposed Action in Combination with Past, Present, and Reasonably Foreseeable Future Actions

The proposed action (i.e. the preferred alternative) would move October from the Summer quota period to the Winter II quota period while leaving all other regulations unchanged (section 5.2).

The direct and indirect impacts of the preferred alternatives on the VECs are described in section 7. The magnitude and significance of the cumulative effects, which include the additive and synergistic effects of the proposed action, as well as past, present, and future actions, are summarized here. 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.

When considered in conjunction with all other pressures placed on the fisheries by past, present, and reasonably foreseeable future actions, the preferred alternative is not expected to result in any significant impacts, positive or negative. As described in section 7.1.2, the preferred alternative is expected to lead to a slight increase in fishing effort for scup during the month of October; however, fishing effort and landings would still be restricted by the annual commercial

quota, which is based on the best scientific information available and is intended to prevent overfishing of the scup stock. The measures which would be altered under the preferred alternative are part of a broader management scheme for scup fisheries. 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. Consistent with NEPA, the MSA 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 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 (Table 25).

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. Cumulatively, it is anticipated that the preferred alternative will result in generally positive impacts on the all VECs. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to the VECs have had a neutral or positive cumulative effect (Table 25).

Table 23: Magnitude and significance of the cumulative, additive, and synergistic effects of the 2016-2018 preferred alternatives, as well as past (P), present (PR), and reasonably foreseeable future (RFF) actions.

VEC	Status in 2017	Net Impact of P, Pr, and RFF Actions	Impact of the Preferred Alternative	Significant Cumulative Effects
Scup	Complex and variable (section 6.1)	Positive (section 7.5.5.1)	Positive (section 7.1.2)	**None**
Non-target Species	Complex and variable (section 6.1)	Positive (section 7.5.5.1)	Positive (section 7.1.2)	**None**
Human Communities	Complex and variable (section 6.2)	Positive (section 7.5.5.2)	Slight positive (section 7.2.2)	**None**
Protected Species	Complex and variable (section 6.3)	Positive (section 7.5.5.3)	Slight negative (section 7.3.2)	**None**
Habitat	Complex and variable (section 6.4)	Neutral to positive (section 7.5.5.4)	Slight negative (section 7.4.2)	**None**

8. Applicable Laws

8.1. Magnuson-Stevens Fishery Conservation and Management Act (MSA)

8.1.1. National Standards

Section 301 of the MSA requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. The Council continues to meet the obligations of National Standard 1 by adopting and implementing conservation and management measures that will continue to prevent overfishing, while achieving optimum yield for managed species and the U.S. fishing industry on a continuing basis. The Council uses the best scientific information available (National Standard 2). Specifically, this framework action was informed by fisheries-independent data from several surveys, commercial fishery landings data, stock assessments, and other scientific data sources. The Council manages scup throughout their range (National Standard 3). The management measures proposed in this framework do not discriminate among residents of different states (National Standard 4) and they do not have economic allocation as their sole purpose (National Standard 5). The measures account for variations in the fishery (National Standard 6), avoid unnecessary duplication (National Standard 7), take fishing communities into account (National Standard 8), and promote safety at sea (National Standard 10). The proposed actions are consistent with National Standard 9, which states that "conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch". By continuing to meet the National Standards requirements of the MSA through future FMP amendments, framework actions, and the annual specification setting process, the Council will insure that cumulative impacts of these actions will remain positive overall for the managed resources, the ports and communities that depend on these fisheries, and the Nation as a whole.

8.1.2. Essential Fish Habitat Assessment

EFH assessments are required for any action that is expected to have an adverse impact on EFH, even if the impact is only minimal and/or temporary in nature (50 CFR Part 600.920 (e) (1-5)).

Description of Action

As previously described, the proposed action would move the month of October from the Summer quota period to the Winter II quota period. This would have the effect of increasing the commercial possession limit during the month of October. The proposed action is described in more detail in section 5.2.

Potential Adverse Effects of the Action on EFH

As previously described, the commercial scup fishery is predominantly a bottom otter trawl fishery. The types of habitat impacts caused by bottom trawls are summarized in section 6.4.3.

As described in section 7.1.2, the proposed action is expected to result in slightly increased fishing effort, compared to recent levels. The locations of fishing effort are not expected to change as a result of the proposed action; however, the amount of gear in the water and the

duration of time that gear is in the water may increase very slightly compared to recent fishery operations.

The habitats that are impacted by scup fisheries have been impacted by many fisheries over many years. The slightly increased fishing effort expected under the proposed action are not expected to cause additional habitat damage, but they are expected to limit the recovery of previously impacted areas. For these reasons, the proposed action is expected to have slight negative impacts on habitat and EFH.

Proposed Measures to Avoid, Minimize, or Mitigate Adverse Impacts of This Action
Measures in the Summer Flounder, Scup, and Black Sea Bass FMP which impact EFH were considered Amendment 13 (MAFMC 2002). The analysis in Amendment 13 indicated that no management measures were needed to minimize impacts to EFH because the trawl fisheries for summer flounder, scup, and black sea bass in Federal waters are conducted primarily in high energy mobile sand habitat where gear impacts are minimal and/or temporary in nature. These characteristics of the fisheries have not changed since Amendment 13. None of the alternatives included in this document were designed to avoid, minimize, or mitigate adverse impacts on EFH.

Section 6.4.3. lists examples of management measures previously implemented by the Council with the intent of minimizing the impacts of various fisheries on habitat; however, none of these measures substantially restrict the scup fisheries.

Conclusions
Overall, the proposed action is expected to have slight negative impacts on EFH; therefore, an EFH consultation is required.

8.2. NEPA Finding of No Significant Impact (FONSI)

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. As described in section 7.1.2, the proposed action could result in slightly increased fishing effort; however, the commercial scup fishery will still be regulated by annual quotas which are based on the best available science

and are intended to prevent the scup stock from becoming overfished and to prevent overfishing from occurring. The proposed action is also not expected to have negative impacts on the stock status of any non-target fish stocks (section 7.1.2). The proposed action could result in increased revenues, and thus positive socioeconomic impacts; however, as described in section 7.2.2, these impacts are not expected to be significant. The proposed action has the potential to result in slightly increased interactions between fishing gear and protected species and between fishing gear and physical habitat, compared to recent levels of interactions; however, as described in sections 7.3.2 and 7.4.2, these impacts are not expected to significant. The expected impacts of the preferred action on all VECs are more fully described in section 7.

2. Can the proposed action reasonably be expected to significantly affect public health or safety?

The proposed action will not significantly alter the manner in which the industry conducts fishing activities (sections 7.1.2 and 7.2.2); therefore, no changes in fishing behavior that would affect safety are anticipated. The proposed action 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?

The proposed action is expected to result in a slight increase in fishing effort (section 7.1.2). It is possible that historic or cultural resources such as shipwrecks could be present in the affected areas; however, these areas are already impacted by the scup fishery and by other fisheries. In addition, vessels try to avoid fishing too close to wrecks due to possible loss or entanglement of fishing gear. It is not likely that the proposed action would result in substantial impacts to unique areas.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The proposed action is informed by input from commercial fishing industry advisors, public input, data from several fisheries-independent trawl surveys, and commercial fish dealer data. The proposed action is not expected to jeopardize any stocks or threaten the sustainability of any fisheries and is not expected to be highly controversial (sections 5.2 and 7.1.2).

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The proposed action is informed by advisor recommendations, data from several trawl surveys, and commercial fish dealer data. It is expected to result in only minor changes in fishing effort and is not expected to have highly uncertain effects or involve unique or unknown risks for the human environment (sections 5.2 and 7.1.2).

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 effects of fishing are well studied and the impacts to managed species, non-target species, and protected resources will continue to be monitored.

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 is not expected to result in significant effects, nor does it represent a decision in principle about a future consideration. The impacts of any future actions will be analyzed in the process of developing those actions.

7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

No, the proposed action is not related to other actions that when considered together will have individually insignificant but cumulatively significant impacts. As discussed in section 7.5.5.5, the proposed action is not expected to have individually insignificant, but cumulatively significant impacts. The proposed action, together with past, present, and reasonably foreseeable future actions, is not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

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?

The impacts of the proposed action on the human environment are described in section 7. There are no districts, sites, highways, structures, or objects, including shipwrecks, listed in or eligible for listing in the National Register of Historical Places that will be affected by the proposed action to a greater extent than they would be affected by the no action alternative (alternative 1).

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?

The proposed action is not expected to significantly alter 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 rates with protected species (section 7.3.2).

This action falls within the range of impacts considered in the Batched Fisheries Biological Opinion for the scup fishery (December 16, 2013). However, in a memorandum dated October 17, 2017, GARFO's Protected Resources Division reinitiated consultation on the Batched Biological Opinion. As part of the reinitiation, it was determined that allowing this fishery to continue during the reinitiation period will not violate ESA sections 7(a)(2) and 7(d) because it

will not increase the likelihood of interactions with protected species above the amount that was previously considered in the 2013 Batched Biological Opinion. Therefore, conducting the proposed action during the reinitiation period would not be likely to jeopardize the continued existence of any whale, sea turtle, Atlantic salmon, or sturgeon species.

As described in section 6.3, the proposed action is not likely to adversely affect any designated critical habitat. Specifically, the scup fishery will not affect the essential physical and biological features of North Atlantic right whale or loggerhead (Northwest Atlantic Ocean DPS) sea turtle critical habitat and therefore, will not result in the destruction or adverse modification of critical habitat (NMFS 2014a; NMFS 2015a, b).

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 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 measures have been found to be consistent with other applicable laws, as described in sections 8.1 through 8.11.

11. Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?

Bottom otter trawls account for the majority of scup catch and are thus the gear of primary concern for interactions with marine mammals (section 6.3). As described in section 7.3.2, the proposed action may result in slight negative impacts for MMPA protected species due to the potential for slight increases in fishing effort for scup.

12. Can the proposed action reasonably be expected to adversely affect managed fish species?

The proposed action is not expected to jeopardize the sustainability of any managed fish species affected by the action. Under the proposed action, scup landings would be restricted to the annual commercial quota, which is based on the best available science and is intended to prevent overfishing. The proposed action is expected to result in a slight increase in fishing effort during October; however, these changes are not expected to threaten non-target species. Catch of most of these species in the scup fishery is addressed through accountability measures which mitigate the negative impacts of that catch when necessary (section 7.1).

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 cause substantial damage to the ocean, coastal habitats, and/or EFH as defined under the MSA and identified in the respective FMPs. The proposed action could lead to a slight increase in fishing effort; however, adverse impacts to benthic

habitats are not expected to be substantial (section 7.4) and are not expected to be beyond the scope previously identified for these fleets.

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 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 scup have been fished for many years, and for a variety of species, and this action is not expected to change the core locations of scup fishing activity. While some scup fishing takes place near the continental slope/shelf break where deep sea corals may be found in and around the submarine canyons, much of this area in the Mid-Atlantic is now protected by a prohibition on bottom-tending gear in the Frank R. Lautenberg Deep Sea Coral Protection Area (81 FR 90246; December 14, 2016). The proposed action is not expected to alter scup 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 impacts of commercial scup fisheries on biodiversity and ecosystem functioning have not been assessed; however, the impacts to components of the ecosystem (i.e. non-target species, habitat, and protected species) have been considered (section 7). As described in section 7.1.2, the proposed action is not expected to result in any non-target species becoming overfished or in overfishing occurring. The proposed action is not likely to cause additional habitat damage beyond that previously caused by a variety of fisheries (section 7.4.2), and it is not expected to jeopardize any protected species (section 7.3.2). It may prevent recovery of damaged habitats and is not expected to contribute to the recovery of any endangered or threatened species. For these reasons, the proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area.

16. Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

There is no evidence or indication that the commercial scup fishery has ever resulted in the introduction or spread of nonindigenous species; therefore, it is highly unlikely that the proposed action would result in the introduction or spread of a non-indigenous species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting environmental assessment prepared for Framework Adjustment 10 to the Summer Flounder, Scup, and Black Sea Bass FMP, it is hereby determined that the proposed actions will not significantly impact the quality of the human environment as described above and in the environmental assessment. 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 EIS for this action is not necessary.

Michael P. Ruccio 4/2/18

Regional Administrator for GARFO, NMFS, NOAA *Date*

8.3. Endangered Species Act

The batched fisheries Biological Opinion completed on December 16, 2013 concluded that the actions considered would not jeopardize the continued existence of any listed species. On October 17, 2017, NMFS reinitiated consultation on the batched Biological Opinion due to updated information on the decline of Atlantic right whale abundance.

Section 7(d) of the ESA prohibits Federal agencies from making any irreversible or irretrievable commitment of resources with respect to the agency action that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternatives during the consultation period for the Biological Opinion. This prohibition is in force until the requirements of section 7(a)(2) or the ESA have been satisfied. Section 7(d) does not prohibit all aspects of an agency action from proceeding during consultation; non-jeopardizing activities may proceed as long as their implementation would not violate section 7(d). Per the October 17, 2017, memo, it was concluded that allowing those fisheries specified in the batched Biological Opinion to continue during the reinitiation period will not increase the likelihood of interactions with ESA listed species above the amount that would otherwise occur if consultation had not been reinitiated. Based on this, the memo concluded that the continuation of these fisheries during the reinitiation period would not be likely to jeopardize the continued existence of any ESA listed species. Taking this, as well as the analysis of the proposed action into consideration, the proposed action, in conjunction with other activities, is not expected to result in jeopardy to any ESA listed species.

This action does not represent any irreversible or irretrievable commitment of resources with respect to the FMP that would affect the development or implementation of reasonable and prudent measures during the consultation period. NMFS has discretion to amend its MSA and ESA regulations and may do so at any time subject to the Administrative Procedure Act and

other applicable laws. As a result, the Council has preliminarily determined that fishing activities conducted pursuant to this action will not affect endangered and threatened species or critical habitat in any manner beyond what has been considered in prior consultations on this fishery.

8.4. Marine Mammal Protection Act

Section 7.3 contains an assessment of the impacts of the proposed action on endangered species and other protected species (including marine mammals). This action is not expected to affect protected species or critical habitat in any manner not considered in previous consultations on the fisheries.

8.5. Coastal Zone Management Act

The Coastal Zone Management Act of 1972, as amended, provides measures for ensuring productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. The Council developed this framework document and will submit it to NMFS. NMFS will determine whether the proposed actions are consistent to the maximum extent practicable with the coastal zone management programs for each state (Maine through North Carolina).

8.6. Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish 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 notice and opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of an FMP and subsequent amendments and framework adjustments. There were many opportunities for public review, input, and access to the rulemaking process during the development of this framework. This action was developed through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during joint Council and Board meetings on December 13, 2016 in Baltimore, MD and May 10, 2017 in Alexandria, VA, as well as during a Monitoring Committee meeting on November 10, 2016 in Baltimore, MD, a Council and Commission AP webinar on November 14, 2016, a Commission AP webinar on April 19, 2017 and during four public hearings in March 2017 held by the Atlantic States Marine Fisheries Commission. The public will have further opportunity to comment on this framework document once NMFS publishes a request for comments notice in the Federal Register.

8.7. Section 515 (Data Quality Act)

Utility of Information Product

This action proposes modifications to the dates of the commercial scup quota periods. This document includes a description of the alternatives considered, the preferred action and rationale

for selection, and any changes to the implementing regulations of the FMP. As such, this document enables the implementing agency (NMFS) to make a decision on implementation and serves as a supporting document for the proposed rule.

This framework document was developed to be consistent with the Summer Flounder, Scup, ad Black Sea Bass FMP, the MSA, and other applicable laws through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during a number of public meetings (section 8.6). The public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the Federal Register.

Integrity of Information Product

This information product meets the standards for integrity under the following types of documents: Other/Discussion (e.g. Confidentiality of Statistics of the MSA; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the MMPA).

Objectivity of Information Product

The category of information product that applies here is "Natural Resource Plans." Section 8 describes how this document was developed to be consistent with any applicable laws, including the MSA. The analyses used to develop the alternatives (i.e. policy choices) are based upon the best scientific information available. The most up to date information was used to develop the environmental assessment which evaluates the impacts of those alternatives (section 7). The specialists who worked with these core data sets and population assessment models are familiar with the most recent analytical techniques and are familiar with the available data and information relevant to the scup fisheries.

The review process for this document involved Council, NEFSC, GARFO, and NMFS headquarters. The NEFSC technical review was conducted by senior-level scientists with specialties in fisheries ecology, population dynamics and biology, as well as economics and social anthropology. The Council review process involved public meetings at which affected stakeholders had the opportunity to comment on proposed management measures. Review by GARFO was conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with applicable law. Final approval of the document and clearance of the rule was conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

8.8. Paperwork Reduction Act

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the federal paperwork burden for individuals, small businesses, state and local governments, and other persons, as well as to maximize the usefulness of information collected by the Federal government. This framework proposes no changes to the existing

reporting requirements previously approved under the Summer Flounder, Scup, and Black Sea Bass FMPs for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the PRA.

8.9. Impacts of the Plan Relative to Federalism/Executive Order 13132

This framework action does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

8.10. Environmental Justice/ Executive Order 12898

EO 12898 provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." EO 12898 directs each Federal agency to analyze the environmental effects, including human health, economic, and social effects of Federal actions on minority populations, low-income populations, and Indian Tribes, when such analysis is required by NEPA. Agencies are further directed to "identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices."

The proposed action is not expected to affect participation in scup fisheries. Because the proposed action is not expected to change the current levels of participation in these fisheries, no negative economic or social effects in the context of EO 12898 are anticipated as a result. Therefore, the proposed action is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian Tribes.

8.11. Regulatory Impact Review and Regulatory Flexibility Act Analysis

8.11.1. Introduction

This section provides analysis to address the requirements of Executive Order 12866 (Regulatory Planning and Review) and the Regulatory Flexibility Act (RFA). Since many of the requirements of these mandates duplicate those required under the MSA and NEPA, this section contains references to other sections of this document. The following sections provide information to determine if the preferred alternative is significant under E.O. 12866 and if it will have a significant economic impact on a substantial number of small entities under the RFA.

NMFS requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement or significantly amend an FMP. The RIR summarizes the economic effects associated with a proposed or final regulatory action, provides a review of the problem to be addressed, evaluates the major alternatives that could be used to address the problem, and ensures that the regulatory agency considers all available alternatives so that public welfare can be enhanced in the most efficient and cost-effective manner. The RIR also serves as the basis for determining whether the proposed regulations are a "significant regulatory action" under E.O.

12866. The RIR in the following sections provides a comprehensive review of the expected changes in net economic benefits to society associated with the preferred alternative.

8.11.2. Regulatory Impact Review (RIR)

8.11.2.1. Description of the Fishery

Section 6.2 contains a description of the fishery affected by the proposed action.

8.11.2.2. Statement of the Problem

This framework action considers modifications to the dates of the commercial scup quota periods. The action alternatives described in this document are intended to help enable the commercial fishery more efficiently meet, but not exceed, the annual commercial quota.

8.11.2.3. Description of Alternatives

Section 5 summarizes all the alternatives considered by the Council. For the purposes of the RIR, only the preferred alternative is considered in detail in this section. The expected socioeconomic impacts of all other alternatives are described in section 7.2.

Under the preferred alternative October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative. The Summer period would last from May 1 – September 30 and would be 31 days shorter than under the no action alternative. The Winter II period would last from October 1 through December 31 and would be 31 days longer than under the no action alternative. The dates of the Winter I period, the allocations of quota among the periods, the quota rollover provisions, the possession limits, and all other measures associated with the quota periods would remain unchanged (Table 2 - Table 4).

The preferred alternative was proposed by AP members. They recommended this change because it would increase the possession limit during the month of October (Table 2 and Table 4). They argued that this change would lead to increased landings and would help the fishery to reach the annual commercial quota. As previously stated, over 2011-2016 commercial landings were 20-47% below the commercial quota (Table 5).

8.11.2.4. Methodology to Evaluate Economic Impacts of Alternatives

This section evaluates the economic impacts of the preferred alternative. Potential impacts on several areas of interest are discussed in order to comprehensively evaluate the economic effects of the alternative. The types of effects considered include changes in landings, prices, consumer and producer benefits, harvesting costs, enforcement costs, and distributional effects (NMFS 2007). Due to the lack of an empirical model for the scup fishery and limited knowledge of elasticities of supply and demand, a qualitative approach was used to evaluate the expected impacts. Quantitative measures are provided whenever possible.

Benefit-cost analysis is conducted to evaluate the net social benefit from changes in consumer and producer surpluses that are expected to occur upon implementation of a regulatory action. Total Consumer Surplus (CS) is the difference between the amounts consumers are willing to

pay for products or services and the amounts they actually pay. CS thus represents net benefit to consumers. When the information necessary to plot the supply and demand curves for a particular commodity is available, CS is represented by the area below the demand curve and above the market clearing price where the two curves intersect. Since an empirical model describing the elasticities of supply and demand for scup is not available, it was assumed that price was determined by the market clearing price, or the intersection of the supply and demand curves (NMFS 2007).

Net benefit to producers is producer surplus (PS). Total PS is the difference between the amounts producers actually receive for providing goods and services and the economic cost producers bear to do so. Graphically, it is the area above the supply curve and below the market clearing price where supply and demand intersect. Economic costs are measured by the opportunity cost of all resources including the raw materials and physical and human capital used in the process of supplying goods and services to consumers (NMFS 2007).

The law of demand states that price and quantity demanded are inversely related. Given a demand curve for a commodity, elasticity of demand is a measure of the responsiveness of the quantity that will be taken by consumers given changes in the price of that commodity, holding other variables constant. Several major factors influence the elasticity for a specific commodity. These factors largely determine whether demand for a commodity is price elastic or inelastic[23] and include: 1) the number and closeness of substitutes for the commodity under consideration, 2) the number of uses for the commodity; and 3) the price of the commodity relative to the consumers' purchasing power (i.e. income). Other factors may also determine the elasticity of demand but are not mentioned here because they are beyond the scope of this discussion. As the number and closeness of substitutes and/or the number of uses for a specific commodity increase, the demand for the specific commodity will tend to be more elastic. Demand for commodities with high prices compared to the consumer's income is likely to be elastic compared to services with low prices relative to the consumer's income. The availability of substitutes is considered the most important factor in determining the elasticity of demand for a specific commodity (Leftwich 1973, Awk 1988). Seafood demand in general appears to be elastic. Demand is elastic for most species, product groups, and product forms (Asche and Bjørndal 2003).

An increase in the ex-vessel price of a given species may increase PS. A decrease in the ex-vessel price for that species may also increase PS if it is assumed that the demand for that species is moderately to highly elastic. However, the magnitude of these changes cannot be entirely assessed without knowing the exact shape of the market demand curve for this species.

[23] Demand is elastic when a change in quantity demanded is large relative to the change in price. Demand is inelastic when a change in quantity demanded is small relative to the change in price.

One of the more visible societal costs of fisheries regulation is that of enforcement. From a budgetary perspective, the cost of enforcement is equivalent to the total public expenditure devoted to enforcement. The economic cost of enforcement is measured by the opportunity cost of devoting resources to enforcement vis à vis some other public or private use, and/or by the opportunity cost of diverting enforcement resources from one fishery to another. Properly defined, enforcement costs are not equivalent to the budgetary expense of dockside or at-sea inspection of vessels. Rather, enforcement costs from an economic perspective, are measured by opportunity cost in terms of foregone enforcement services that must be diverted to enforcing the regulations associated with the preferred alternative.

8.11.2.5. Description of the Management Objectives

This framework action, if implemented, will be implemented under the Summer Flounder, Scup, and Black Sea Bass FMP. The management objectives of that FMP with respect to scup are to:

- Reduce fishing mortality in the scup fishery to assure that overfishing does not occur.
- Reduce fishing mortality on immature scup to increase spawning stock biomass.
- Improve the yield from the fisheries.
- Promote compatible management regulations between state and federal jurisdictions.
- Promote uniform and effective enforcement of regulations.
- Minimize regulations to achieve the management objectives stated above.

The proposed action is consistent with and does not modify these objectives. This action is taken under the authority of the MSA and regulations at 50 C.F.R. part 648.

8.11.2.5.1. Analysis of Alternatives

For the reasons described in section 7.1.2, commercial scup landings in October are expected to increase slightly under the proposed action, compared to the no action alternative (alternative 1). Landings are not expected to exceed the annual quota and are thus not expected to increase to the extent that the rebuilt status of the scup stock is threatened. This slight increase in landings is expected to lead to slightly increased revenues for fishermen and commercial fish dealers, and thus slight positive socioeconomic impacts. The socioeconomic impacts of the annual quotas are analyzed in the specifications packages which set the quotas (e.g. MAFMC 2015).

The price of scup is generally inversely correlated with landings (i.e. the price tends to be lower when landings are higher). This relationship is not linear and many other factors also influence price; therefore, it is difficult to predict with confidence how the price could change under the proposed action. If an increase in landings during October results in a decrease in price, then the positive socioeconomic impacts of the proposed action may be lesser in magnitude. Smaller vessels have a more limited ability to increase the volume of their landings to offset a decrease in price, compared to larger vessels; therefore, a decrease in price may have some negative impacts on smaller vessels, compared to larger vessels. In October 2011-2015, commercial fish dealers paid an average of $0.77 per pound of scup (Figure 25).

Although the proposed action could result in a decrease in price compared to the no action alternative (alternative 1) and thus could have some negative impacts on smaller vessels compared to larger vessels, overall it is expected to have slight positive socioeconomic impacts by allowing for increased landings and increased revenues for the commercial scup fishery as a whole.

8.11.2.5.2. Evaluation of Significance Under E.O. 12866

The proposed action (i.e. the preferred alternative) does not constitute a significant regulatory action under E.O. 12866. It will not have an annual effect on the economy of more than $100 million. The change in revenues as a result of the preferred alternative is unknown, but will certainly be far below $100 million. The total value of all commercial landings of scup in 2016 was approximately $10.8 million, as shown in commercial dealer data.

The proposed action will benefit the economy, productivity, competition, and jobs in a material way by allowing for a slight increase in scup landings without jeopardizing the sustainability of other fisheries or creating negative impacts to other sectors of the economy. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. The action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. The proposed action will not materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of their participants. The action does not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

8.11.3. Regulatory Flexibility Analysis

The RFA requires the Federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency (in this case, NMFS) must either certify that the rule “will not, if promulgated, have a significant economic impact on a substantial number of small entities” or prepare an Initial Regulatory Flexibility Analysis (IRFA). An IRFA describes the impacts of the proposed rule on small entities and is prepared when a Federal agency publishes a notice of proposed rulemaking if the agency cannot certify that the proposed rule will not have a significant impact on a substantial number of small entities. The determination of whether to certify or prepare an IRFA depends on the context of the proposed action, the problem to be addressed, and the structure of the regulated industry. If the agency prepares an IRFA, a Final Regulatory Flexibility Analysis will be prepared when the final rule is promulgated.

8.11.3.1. Proposed Action

The proposed action would modify the dates of the Summer and Winter II commercial scup quota periods. Under the proposed action, October would become part of the Winter II quota period, as opposed to the Summer period under the no action alternative. The Summer period

would last from May 1 – September 30 and would be 31 days shorter than under the no action alternative. The Winter II period would last from October 1 through December 31 and would be 31 days longer than under the no action alternative. The dates of the Winter I period, the allocations of quota among the periods, the quota rollover provisions, the possession limits, and all other measures associated with the quota periods would remain unchanged (Table 2 - Table 4).

This alternative was proposed by AP members. They recommended this change because it would increase the possession limit during the month of October (Table 2 and Table 4). They argued that this change would lead to increased landings and would help the fishery to reach the annual commercial quota. As previously stated, over 2011-2016 commercial landings were 20-47% below the commercial quota (Table 5).

There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the PRA. This action does not duplicate, overlap, or conflict with other Federal rules.

8.11.3.2. Universe of Regulated Entities

The RFA requires consideration of the economic impacts of proposed actions on directly affected entities as well as a comparison of the impacts on small businesses compared to large businesses. For RFA purposes only, NMFS established a size standard for small business, including their affiliates, whose primary industry is commercial fishing (see 50 CFR 200.2). A business primarily engaged in commercial fishing (North American Industry Classification System code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $11 million for all its affiliated operations worldwide.

The preferred alternative will increase the commercial scup possession limit during October and will directly affect any entities which commercially harvest scup. It will not *directly* affect seafood processors, recreational fishing entities, or other entities.

Potentially affected entities were identified as commercial fishing vessels with active Federal commercial scup permits during 2014-2016, grouped by common owners. The resulting groupings were treated as a fishing business (i.e. affiliates). [24] Based on this methodology, 526 fishing businesses were identified as being potentially affected by the proposed action. Of the 526 identified affiliates, 9 are considered large entities and 517 are considered small businesses based on their fishing revenues in 2016.

[24] Ownership data used to identify affiliates for 2014-2016 were provided by Min-Yang Lee, NEFSC Social Science Branch.

Of these 517 small businesses affiliates, 286 were active participants in the commercial scup fishery during 2014-2016 (i.e. they reported revenues from scup). These 286 small businesses will likely experience the economic impacts of the proposed action more so than the 231 potentially impacted small businesses which were not active participants in the scup fishery during 2014-2016.

Table 24 includes summary information on revenues from scup and total fishing revenues during 2014-2016 for the 517 small businesses which may be affected by the proposed action. Overall, scup receipts represented about 1.2% of total receipts from fishing for these businesses. The businesses with lower average gross receipts tended to have a higher dependency on scup revenues, though the portion of their revenues from scup was still fairly low. For example, affiliates with $0.5-1 million in overall receipts from fishing received 4.9% of those receipts from scup, compared to 1.2% for all small businesses combined (Table 24).

The nine firms that were categorized as large entities (not shown in Table 24) had average annual gross fishing receipts of about $123 million during 2014-2016. These entities had average annual scup receipts of $9,358 (about 0.01% of total average annual fishing receipts).

Table 24: Average annual total gross receipts from all fishing activities during 2014-2016 for the 517 small businesses[25] affected by the proposed action, as well as average annual scup receipts. Firms are grouped based on their average annual revenue from fishing during 2014-2016.

Average Annual Fishing Revenue, 2014-2016	# of Firms	Avg. Gross Receipts ($)	Avg. Scup Receipts ($)	Scup as Proportion of Gross Receipts
< $0.5 million	347	$121,122	$4,237	3.5%
$0.5 million to < $1 million	63	$760,994	$37,182	4.9%
$1 million to < $2 million	55	$1,424,256	$43,748	3.1%
$2 million to <$5 million	30	$3,337,532	$53,926	1.6%
$5 million to $11 million	11	$7,608,854	$23,578	0.3%
>$11 million	11	$29,158,373	$20,882	0.1%
Total or overall average	517	$1,301,492	$16,105	1.2%

8.11.3.3. Expected Economic Impacts

Under the RFA, effects on profitability associated with the proposed management measures should be evaluated by assessing the impact of the proposed measures on the costs and revenues for individual business entities. Changes in gross revenues are used as a proxy for profitability in

[25] Businesses were classified as small or large based on their 2016 receipts. Values in Table 26 represent average receipts during 2014-2016. Some affiliates which were classified as small businesses based on 2016 receipts of less than $11 million, but had average 2014-2016 receipts which exceeded $11 million.

the absence of cost data for individual business entities. Many factors influence scup landings, including quotas, prices, weather, and availability of scup and other target species; therefore, changes in landings, and, by extension, changes in revenues, as a result of the proposed action cannot be precisely estimated and are instead described in a general, qualitative sense.

The preferred alternative would increase the commercial scup possession limit during the month of October. For the reasons described in sections 7.1.2 and 7.2.2, this change is expected to lead to a slight increase in landings and thus a slight increase in revenues for commercial fishermen who participate in the scup fishery during October. An increase in landings may lead to a decrease in price; however, the increase in landings is expected to be slight and may not notably impact prices. Any decrease in price is not expected to be substantial enough to cause a decline in revenues. All directly affected businesses (section 8.11.3.2) are expected to benefit from this change; however, some businesses may benefit more than others. For example, larger vessels may be better able to take advantage of the increased possession limit than smaller vessels. In addition, those affiliates with a higher proportion of annual receipts from scup may see a greater benefit than those with a lesser proportion of annual receipts from scup (Table 24). As previously described, changes in landings and prices are influenced by a variety of factors and are difficult to predict as they. For this reason, the impact of the preferred alternative has not been translated into a dollar value.

According to the SBA definition of a small business presented above, 98% (517 out of 526) of the entities that are expected to be impacted by the proposed action meet the definition of a small business, while 2% (9 out of 526 business firms) are categorized as large entities. The proposed action is not expected to result in disproportional effects on profits, costs, or net revenue for a substantial number of small entities compared to large entities. It is not expected to place a substantial number of small entities at a significant competitive disadvantage compared to large entities. All directly affected business, both large and small, are expected to experience economic benefits from the proposed action. Small businesses are expected to see a greater positive benefit than the large entities due to their greater dependence on scup.

8.11.3.4. Other Alternatives

If implemented, alternatives 3.A-3.C would have greater positive socioeconomic impacts than the preferred alternative. These alternatives are described in more detail in section 5.3 and their associated socioeconomic impacts are described in section 7.2. The Council and Board did not select these as preferred alternatives for a variety of reasons. Some Council and Board members felt that the preferred alternative represented a less dramatic change to the current quota period system than alternatives 3.A-3.C, while still providing a benefit to commercial scup fishermen. Some Council and Board members expressed concern that alternatives 3.A-3.C could have negative impacts on the scup stock due to the potential increase in fishing effort during the spawning season (section 7.1.3). Alternatives 3.A-3.C were also thought to put smaller vessels at a greater disadvantage to larger vessels, compared to the preferred alternative, because the possession limit would increase by a greater amount under alternatives 3.A-3.C. As previously

stated, smaller vessels may be less able to take advantage of an increased possession limit than larger vessels and could be impacted by potential decreases in price to a greater extent than larger vessels.

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10. List of Agencies and Persons Consulted

In preparing this document, the Council consulted with NMFS, the New England and South Atlantic Fishery Management Councils, Fish and Wildlife Service, and the states of Maine through North Carolina through their membership on the Mid-Atlantic Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board. The advice of NMFS GARFO personnel was sought to ensure compliance with NMFS formatting requirements.

Copies of the document are available from Dr. Christopher M. Moore, Executive Director, Mid-Atlantic Fishery Management Council, Suite 201, 800 North State Street, Dover, DE 19901; 302-674-2331. Once finalized, this document will be posted to www.mafmc.org.