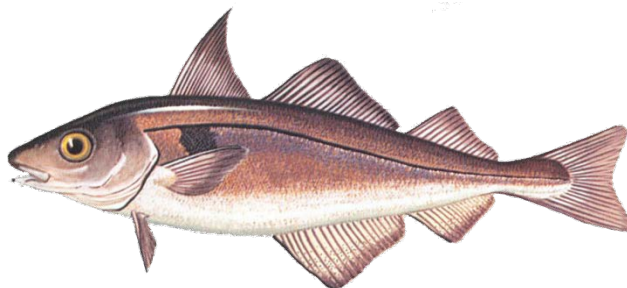


Supplemental Environmental Assessment
Gulf of Maine Cod and Haddock Recreational Management Measures

*Supplements the Environmental Assessment for Framework Adjustment 55 to the
Northeast Multispecies Fishery Management Plan*

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Melanogrammus aeglefinus



Gadus morhua

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1.0 INTRODUCTION

The National Marine Fisheries Service (NMFS) has prepared this supplemental analysis to evaluate potential impacts that would result from the proposed action to revise recreational fishery management measures for Gulf of Maine (GOM) cod and haddock. As outlined by the Northeast Multispecies Fishery Management Plan (FMP), the Regional Administrator (RA) has authority to proactively adjust recreational management measures to ensure optimum yield of recreational groundfish catch. Recent groundfish operational stock assessments conducted by the Northeast Fisheries Science Center support an increase in annual catch limits (ACLs) which would allow for an increase in recreational groundfish catch.

In accordance with the National Environmental Policy Act (NEPA), NMFS evaluated the potential impacts of a range of catch limits and management measures in an Environmental Assessment (EA) submitted to NMFS by the New England Fishery Management Council (Council), on February 19, 2016. The Framework 55 EA analyzes the impact of removing the GOM cod prohibition that was previously implemented under Framework 53. Further, Framework 55 establishes ACLs for both GOM cod and haddock, including sub-ACLs for the recreational fishery. However, modifications to effort controls, such as daily bag limits and seasonal closures, which would allow for an increase in recreational catch and help recreational fishermen achieve optimum yield, were not considered in Framework 55 since the RA has the authority to adjust these measures. They are contained in this document.

Therefore, it is necessary to assess these effort controls as a supplement to Framework 55. The conclusion reached in the Framework 55 EA is that the preferred measures, including a range of catch limits and management measures including the recreational sub-ACLs for GOM cod and haddock, would not significantly impact the quality of the human environment. This supplemental EA analyzes the impacts on the physical, biological, habitat, and socio-economic ecosystem components that would result from revising measures for the GOM cod and haddock recreational fishery. This document is not a stand-alone document, but rather a supplemental EA, intended to be utilized in conjunction with the attached Framework 55 EA.

2.0 BACKGROUND

GOM cod and haddock are cooperatively managed by the Council and NMFS under the FMP. Under the FMP, specific sub-ACLs for the recreational fishery are established for each fishing year for GOM cod and haddock. These sub-ACLs are a subcomponent of the overall stock annual catch limit for both species. The FMP also contains accountability measures, in accordance with Magnuson-Stevens Fishery and Conservation Management Act (Magnuson-Stevens Act) National Standard 1 guidelines. The multispecies fishery opens on May 1 each year and runs through April 30 of the following calendar year.

Recreational catch and effort data are estimated by the Marine Recreational Information Program (MRIP). MRIP is a comprehensive, multi-faceted survey system administered by NMFS. MRIP

information is released in 2 month ‘waves’ with preliminary data provided approximately 6 weeks following the end of a wave¹. For example, Wave 1 data for January and February would be available around mid-April. This fishing year, the GOM haddock fishery was open from May 1, 2015, through August 31, 2015, and again November 1, 2015, through February 29, 2016. However, there is minimal recreational fishing during the winter season. As a result, we were able to review recreational catch and model predicted fishing year 2016 catch earlier than normal. Table 1 includes fishing year 2015 and 2016 recreational catch information.

The Northeast Fishery Science Center (Center) conducted an operational stock assessment on all 20 Northeast Multispecies from September 14-18, 2015. The assessment concluded that the GOM haddock stock was continuing to improve, but GOM cod remains overfished and subject to overfishing. A substantial increase in the GOM haddock sub-ACL suggested that recreational haddock catch could be increased next year. Further, the slight increase in the GOM cod recreational sub-ACL created interest in potentially removing the Framework 53 prohibition on GOM cod for recreational fishermen.

Table 1. Preliminary FY 2015 and 2016 Recreational Catch Information for GOM cod and Haddock (all weights in mt).

GOM Stock	Fishing Year 2015 sub-ACL	Total Catch	% of Fishing Year 2015 sub-ACL caught	Fishing Year 2016 sub-ACL	% increase in sub-ACL
Cod	121	69	57%	157	30%
Haddock	372	301	81%	926	149%

The accountability measures outlined in the FMP (§ 648.89(f)(3)) indicate that the Greater Atlantic Regional Fisheries Office (GARFO) Regional Administrator may, in consultation with the Council, adjust recreational measures to ensure the recreational fishery achieves, but does not exceed, any recreational fishery sub-ACL in a future fishing year. Because the status quo measures for GOM cod and GOM haddock would result in catch that is substantially less than the proposed sub-ACLs, the Council has recommended that NMFS modify recreational management measures to increase recreational catch and achieve optimum yield.

The Council convened its Recreational Advisory Panel (RAP) on November 17, 2015, to recommend management measure changes for the upcoming fishing year. The following day, the Council’s Groundfish Oversight Committee reviewed the recommended management measures. The Council considered motions by the RAP and Committee at its December 2, 2015, meeting. These meetings were designed to provide the necessary consultation between NMFS and the

¹ Final data for a calendar year is typically available by April 15th of the following calendar year.

Council as outlined in the FMP.

The RAP reviewed catch projections under various scenarios of changed measures for fishing year 2016 modeled by staff from the Northeast Fisheries Science Center (Center) Social Sciences Branch (SSB). SSB staff use a model that was peer-reviewed in 2012 by the Council's Scientific and Statistical Committee and previously described in the supplemental EA prepared to analyze FY 2012 GOM cod interim management measures prepared by NMFS. This bioeconomic simulation model predicts the expected number of GOM cod and haddock that would be kept and discarded from alternative seasons, and possession and size limits. The model combines economic information derived from an angler choice experiment survey with biological information about the current stock structure for both stocks with historical catchability data from recreational anglers. The model also incorporates size limit and bag limit non-compliance using MRIP data. Ultimately, the model simulates the effects of proposed changes in seasons, and possession and size limits on angler effort and the resultant mortality for recreationally caught GOM cod and haddock.

The model estimates for fishing year 2016 were presented to the RAP, noting that there is some uncertainty in the model following the zero cod possession limit. Further, since an increase is possible, it is difficult to predict how dramatically fishing effort will increase with the proposed changes. The model used the most recent operational assessment assumptions about recreational discard mortality: 15 percent for cod and 50 percent for haddock.

During its deliberation, the RAP debated whether anglers should be able to retain one cod during the months of July and August (wave 4) or September and October (wave 5). Most RAP members initially supported opening wave 5 because that alternative resulted in less cod being caught and was more beneficial to the rebuilding cod stocks. It was also discussed that opening wave 5 would extend the primary summer fishing season further into the fall, potentially creating additional fishing opportunities that would help charter and party boat businesses. Others argued that the RAP should allow cod to be retained by anglers during the months of July and August when most anglers are fishing and when most businesses would benefit. According to the model, opening wave 4 would result in the most trips being taken (only a slight increase, however), while still keeping catch within the sub-ACL. The RAP initially elected to open wave 5, but decided to reconsider its decision, concluding that opening wave 4 was its preferred alternative.

A similar debate took place the following day when the Groundfish Oversight Committee met. Unlike the RAP, the Committee chose to support opening wave 5 because it preferred the idea of extending the fishing season further into the fall.

A compromise was proposed and selected by the Council, that recommended that anglers should be able to retain one cod during the months of August and September (the second month of wave 4 and the first month of wave 5). There is some concern with this approach since the model developed by SSB staff can only forecast catch by wave and is currently unable to separate or

reduce data in any finer detail.

3.0 PURPOSE AND NEED

The purpose of this action is to implement management measures for the recreational GOM cod and haddock fishery that includes a bag limit increase and opening seasons that were previously closed. This action is needed to increase recreational catch consistent with the increase in recreational sub-ACLs for both GOM cod and haddock, while ensuring that the catch limits are not exceeded. This would provide the greatest possible benefit to the nation, particularly with respect to food production and recreational opportunities. Constraining catch to the sub-ACLs is required by the Magnuson-Stevens Act and needed to ensure that stocks are not subject to overfishing and, for GOM cod, to foster stock rebuilding consistent with the rebuilding program.

4.0 PROPOSED ACTION AND ALTERNATIVES

The preferred alternative and other alternatives considered in this supplemental EA are described in the following sections and summarized in the subsequent tables. All of the alternatives considered for this action are predicated on sub-ACLs as proposed in Framework 55.

In addition to the no action (status quo) alternative, three other additional alternatives were identified that achieve the purpose and need for this action. This action is narrowly focused on achieving, but not exceeding, the fishing year 2016 recreational sub-ACLs for GOM cod and haddock. Alternatives necessarily must meet the objective of providing a reasonable probability that the catch resulting in fishing year 2016 will be below the recreational fishery catch limit.

4.1 NO ACTION (STATUS QUO) ALTERNATIVE 1

The no action alternative would maintain the FY 2015 measures for the recreational GOM haddock fishery in combination with zero recreational possession of GOM cod. These are:

Possession Limit	Minimum Fish Size	Closed Season
3 fish per angler	17 inches	3/1-4/30 9/1-10/31

These haddock measures were implemented as proactive accountability measures under the Regional Administrator's authority and were designed to achieve, but not exceed, the sub-ACLs in place for fishing year 2015 (cod: 121 mt; haddock: 372 mt). Retaining the status quo would result in lost recreational fishing opportunities since the catch limits for both GOM cod and haddock are increasing for the next fishing year.

4.2 ALTERNATIVE 2 (Recreational Advisory Panel Recommendation)

The management measures recommended by the Recreational Advisory Panel are:

Stock	Possession Limit	Minimum Fish Size	Fishing Season
GOM Cod	1 fish per angler	24 inches	July 1 – August 31, 2016
GOM Haddock	15 fish per angler	17 inches	May 1, 2016 – February 28, 2017 and April 15, 2017 – April 30, 2017

Rationale: This alternative would allow fishermen to catch 15 haddock for almost the entire fishing year, and a bag limit of 1 cod during wave 4 (July-August), which is the busy summer recreational fishing season. The model predicts that catch from these measures would dramatically increase fishing opportunities while remaining within the catch limits. The RAP supported this alternative over other model runs because it is predicted to allow for the most angler effort (trips taken) compared to other model runs, including alternatives analyzed in this EA (see Table 6, below).

4.3 **ALTERNATIVE 3 (Groundfish Committee Recommendation)**

The management measures recommended by the Groundfish Committee are:

Stock	Possession Limit	Minimum Fish Size	Fishing Season
GOM Cod	1 fish per angler	24 inches	September 1 – October 31, 2016
GOM Haddock	15 fish per angler	17 inches	May 1, 2016 – February 28, 2017 and April 15, 2017 – April 30, 2017

Rationale: Similar to the measures proposed by the RAP, this alternative would allow fishermen to catch 15 haddock for almost the entire fishing year, but 1 cod could be retained during wave 5 (September-October) instead of wave 4. The Committee selected this wave because it could potentially extend the fishing season for many recreational fishing businesses into the fall. The model predicts that catch from these measures would dramatically increase fishing opportunities while remaining within the catch limits.

4.4 **ALTERNATIVE 4 (Council Recommendation, Preferred Alternative)**

The management measures recommended by the Groundfish Committee are:

Stock	Possession Limit	Minimum Fish Size	Fishing Season
GOM Cod	1 fish per angler	24 inches	August 1 – September 30, 2016
GOM Haddock	15 fish per angler	17 inches	May 1, 2016 – February 28, 2017 and April 15, 2017 – April 30, 2017

Rationale: Similar to the measures proposed by the RAP and the Committee, this alternative would allow fishermen to catch additional haddock for almost the entire fishing year, but cod could be retained during the second month of wave 4 and the first month of wave 5 (August-September). The Council selected this as a compromise between the RAP and the Committee. The model predicts that catch from these measures would dramatically increase fishing opportunities while remaining within the catch limits.

5.0 AFFECTED ENVIRONMENT

The Valued Ecosystem Components (VECs) affected by the proposed action include the physical environment, Essential Fish Habitat (EFH), target species, non-target species/bycatch, protected resources, and human communities, which are described in Section 6.0 of the Framework 55 EA. Section 6.6.9.3 of the Framework 55 EA provides additional detail on the groundfish recreational fishery. The following section provides additional information that is specific to the proposed recreational management measure alternatives under consideration in this supplemental EA.

5.1 HUMAN COMMUNITIES AND THE FISHERY

Harvest of GOM Cod and Haddock

Recent catch estimates for both GOM cod and haddock are provided in Table 2. Note the dramatic declines in fishing year 2015 due to the GOM cod retention prohibition, 3-fish haddock bag limit, and increased seasonal closures.

Tables 3 and 4 detail haddock and cod catch by recreational vessel type. Catch of both cod and haddock by charter boats and private anglers declined substantially in fishing year 2015. Party boats were able to increase their harvest (landings) of haddock in 2015. Total cod catch by party boats also increased in 2015.

Table 2. Gulf of Maine Recreational Catch Estimates by Fishing Year, 2013-2015¹.

	FY2013	FY2014	FY2015 ³
Angler Trips ²	254,949	208,737	112,271
Cod Catch (numbers, a+b1+b2)	993,486	817,000	385,437
Cod Kept (numbers, a+b1)	381,181	224,399	5,293
Cod Released (numbers, b2)	612,306	592,601	380,144
Cod Removals (numbers, a+b1+(0.15*b2))	473,027	313,289	62,315
Cod Removals (weight ⁴ , mt)	779	619	69
Cod Avg. Catch Per Trip (numbers)	3.9	3.9	3.4
Cod Avg. Kept Per Trip (numbers)	1.5	1.1	0.05
Cod Avg. Released Per Trip (numbers)	2.4	2.8	3.4
Cod Avg. Weight of Kept Fish (weight ⁴ , lbs)	4.1	5.4	2.6
Haddock Catch (numbers, a+b1+b2)	772,601	1,021,004	567,613
Haddock Kept (numbers, a+b1)	165,028	173,974	165,298
Haddock Released (numbers, b2)	607,574	847,030	402,316
Haddock Removals (numbers, a+b1+(0.5*b2))	468,815	597,489	366,456
Haddock Removals (weight ⁴ , mt)	549	646	301
Haddock Avg. Angler Catch Per Trip (numbers)	3.0	4.9	5.1
Haddock Avg. Angler Kept Per Trip (numbers)	0.6	0.8	1.5
Haddock Avg. Angler Released Per Trip (numbers)	2.4	4.1	3.6
Haddock Avg. Weight of Kept Fish (weight ⁴ , lbs)	1.8	1.7	2.5

¹Source: Available MRIP data as of October 22, 2015

²Angler trips = number of angler trips that targeted and/or caught cod or haddock

³Data available for wave's 3 and 4 in FY2015. Data from wave 2, 2015 and wave's 5 and 6, 2014 used as proxies.

⁴All weights are based on round weights calculated from MRIP length frequencies and length to weight equations used in the assessments

Table 3. Number of Recreationally Caught Cod by Mode, Fishing Years 2012-2014.

Mode	Harvest (a+b1)			Released (b2)			Total Catch (a+b1+b2)		
	FY2013	FY2014	FY2015*	FY2013	FY2014	FY2015*	FY2013	FY2014	FY2015*
Party boat	131,686	33,214	2,269	139,247	90,040	128,718	270,933	123,254	130,988
Charterboat	68,776	89,024	-	140,774	202,425	70,479	209,550	291,449	70,479
Privateboat	180,719	102,161	3,024	332,032	300,137	180,947	512,750	402,298	183,970
Shore	-	-	-	253	-	-	253	-	-
	381,181	224,399	5,293	612,306	592,601	380,144	993,486	817,000	385,437

*Data available for wave's 3 and 4 in FY2015. Data from wave 2, 2015 and wave's 5 and 6, 2014 used as proxies.

Table 4. Number of Recreationally Caught Haddock by Mode, Fishing Years 2012-2014.

Mode	Harvest (a+b1)			Released (b2)			Total Catch (a+b1+b2)		
	FY2013	FY2014	FY2015*	FY2013	FY2014	FY2015*	FY2013	FY2014	FY2015*
Party boat	33,197	56,099	108,565	219,932	343,796	177,308	253,129	399,895	285,873
Charterboat	45,147	69,726	35,085	85,053	211,999	59,575	130,201	281,725	94,660
Privateboat	86,684	48,149	21,648	302,588	291,235	165,433	389,272	339,384	187,081
Shore	0	0	0	-	0	0	0	0	0
	165,028	173,974	165,298	607,574	847,030	402,316	772,601	1,021,004	567,613

*Data available for wave's 3 and 4 in FY2015. Data from wave 2, 2015 and wave's 5 and 6, 2014 used as proxies.

6.0 DIRECT AND INDIRECT IMPACTS OF THE ALTERNATIVES

This supplemental EA evaluates the potential impacts using the criteria outlined in Table 8. Impacts from all alternatives are compared individually and judged relative to the baseline conditions, as described in Section 4.0 and Section 6.0 of the Framework 55 EA.

Table 5. Criteria Used to Evaluate the Direct and Indirect Impacts of the Proposed and No-Action Alternatives.

Impact Definition			
VEC	Direction		
	Positive (+)	Negative (-)	Negligible (Negl)
Target species, other landed species, and protected resources	Actions that increase stock/population size	Actions that decrease stock/population size	Actions that have little or no positive or negative impacts to stocks/populations
Physical Environment/Habitat/EFH	Actions that improve the quality or reduce disturbance of habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have no positive or negative impact on habitat quality
Human Communities	Actions that increase revenue and social well-being of fishermen and/or associated businesses	Actions that decrease revenue and social well-being of fishermen and/or associated businesses	Actions that have no positive or negative impact on revenue and social well-being of fishermen and/or associated businesses
Impact Qualifiers:			
Low (L, as in low positive or low negative)	To a lesser degree (not significant)		
High (H; as in high positive or high negative)	To a substantial degree (not significant)		
Likely	Some degree of uncertainty associated with the impact		

6.1 BIOLOGICAL IMPACTS

Target and Non-target Species Impacts

A bioeconomic simulation model developed by the NEFSC was used to predict the expected number of GOM cod and haddock that would be kept and discarded from alternative possession and size limits. The model combines economic information derived from an angler choice experiment survey with biological information about the current stock structure for GOM cod and haddock stocks with historical catchability data from recreational anglers to project recreational catches. The choice experiment survey was administered in conjunction with NMFS' Marine Recreational Fisheries Statistics Survey (MRFSS) in New England during calendar year 2009.

Anglers intercepted in Maine, New Hampshire, and Massachusetts for the MRFSS were asked to participate in a voluntary follow-up mail survey. Anglers that agreed to participate in the follow-up were sent mail questionnaires using a modified Dillman Tailored Design (Dillman, 2000), in which anglers were asked to simultaneously compare features (e.g., size and possession limits) of different hypothetical fishing trips and then to choose the trip they liked best or to choose not to fish at all. A total of 2,039 surveys were mailed out in New England and 775 completed mail surveys were returned for a response rate of 38%. The collection of choice responses from the various choice scenarios were used to examine tradeoffs and behavioral responses to various biological and regulatory changes.

A Random Utility Model (RUM) estimated from a conditional logit was used as the behavioral model for anglers. In this model, the angler faces a choice among alternative saltwater fishing trips and opting out of saltwater fishing. The utility function is specified so that regulations affect an angler's utility (e.g., trip duration, kept fish) indirectly by altering an angler's expected distribution of kept and released fish. The model also attempts to adjust potential catch projections based on anglers' willingness to pay for fishing trips in relation to the number and size of fish that may be kept. The effects of changes in kept or released fish on both angler welfare (i.e., angler satisfaction) and probability of trip occurrence were evaluated using simulation methods, which attempt to replicate actual fishing behavior under different regulatory scenarios. The model used the most recent operational assessment assumptions about recreational discard mortality (known as class "B2"): 15 percent for cod and 50 percent for haddock.

Previously, NMFS was required to modify management measures that reduced angler effort because of catch overages and reduced quotas. Following the conclusions of the recent operational stock assessments, which suggest quotas can be increased this year, catch limits are proposed to increase. As a result, the model simulations were run to allow for increases in effort (and therefore catch) in correspondence with the increased catch limits. Table 6 shows the estimated mortality and effort associated with the four alternatives considered in this document. The model runs for all four of the alternatives predict that catch would remain within the catch limits. Alternatives 2-4 would allow for much more fishing opportunities and catch than alternative 1 (status quo).

Because the model utilizes data by wave, alternative 4, the Council hybrid option, cannot be modeled. As a result, the data for alternative 4 in table 6 is simply a range between alternatives 2 and 3, since the cod fishing period would be between alternatives 2 and 3.

There is little difference between the model results of alternatives 2, 3, and 4 because the GOM haddock measures are all similar, and the only difference is the two-month window when anglers could keep one cod. Because most anglers caught about 3 cod per trip over the last several years and kept 1 cod when they were allowed (Table 2), restricting anglers to only 1 cod per trip does not substantially increase mortality or angler incentive in the model.

The greatest amount of fishing effort occurs during wave 4 (July-August), then waves 3 (May-June) and 5 (September-October) (Table 7). This is due to seasonality, boating weather, and tourism. Because of this, generally catch (and fishing mortality) is highest in wave 4, then wave 3, then wave 5. This is why the model predicts that mortality would be highest under alternative 2, then alternative 3, with mortality and effort from alternative 4 likely somewhere in between alternatives 2 and 3.

It should be noted that there is some uncertainty in the model because it cannot anticipate how much effort will actually increase. It is difficult to predict how many more anglers will fish, and how much longer they will fish. Previously, with a 3-fish haddock bag limit, there was substantial incentive to leave an area upon reaching the bag limit so fishermen could catch other fish (such as pollock). However, since most anglers normally catch less than 6 GOM haddock (Table 2) and the bag limit would increase to 15 under alternatives 2-4, it is difficult to predict how long vessels may continue to try and catch more haddock and whether or not they will be successful. It is also difficult to predict how many cod may be caught and released during that time period.

Table 6. Estimated Fishing Year 2016 Mortality of GOM Cod and Haddock by Management Alternative.*

Alternative	Haddock					Cod					
	Bag Limit	Size Limit	Open Season	Total Mortality (mt, median)	Total Mortality as % of Quota	Bag Limit	Size Limit	Open Season	Total Mortality (mt, median)	Total Mortality as % of Quota	Angler Trips (median)
1 (Status Quo)	3	17"	Waves 3, 4, 6, 1	405	44%	0		Closed	66	42%	117,139
2 (RAP Recommendation)	15	17"	All year, except April 15-30	709	76%	1	24"	Jul-Aug	132	84%	168,125
3 (Committee Recommendation)	15	17"	All year, except April 15-30	707	76%	1	24"	Sept-Oct	114	73%	167,549
4 (Council Recommendation)	15	17"	All year, except April 15-30	707-709	76%	1	24"	Aug-Sept	114-132	73-84%	167,549-168,125

* The model cannot split a wave of data; the numbers provided under alternative 4 are a range between alternatives 2 and 3

Fishing Year 2016 GOM haddock recreational sub-ACL = 928 mt

Fishing Year 2016 GOM cod recreational sub-ACL = 157 mt

Table 7. Total Recreational Effort¹ by Wave, Fishing Years 2012-2014².

	Wave					Total
	2	3	4	5	6	
FY2012	15,720	901,593	1,175,250	420,345	12,507	2,525,416
FY2013	26,513	710,491	1,169,866	689,884	9,079	2,605,832
FY2014	21,938	576,897	1,508,140	560,444	6,722	2,674,141
¹ Angler trips = all angler trips in Gulf of Maine						
² Fishing Year 2015 is excluded from this table because it was so different due to the GOM cod prohibition and haddock seasonal closures. Fishing years 2012-2014 are better indicators for potential effort in fishing year 2016						

6.1.1 Alternative 1 (No Action)

Under the no action (status quo) alternative, there would be no change to the recreational minimum fish size, possession limit, or closed seasons for GOM cod and haddock. As a result, the model predicts that 44 percent of the GOM haddock quota and 42 percent of the GOM cod recreational quotas would be caught.

GOM haddock is not overfished and overfishing is not occurring. GOM haddock is a rebuilt stock and underutilizing it would be inconsistent with the FMP and the intent of National Standard 1 guidelines. Considering the buffer between the expected catch from the model (Table 6) and the sub-ACL, it is highly likely that the sub-ACL will not be exceeded under no action measures. However, the 2014 benchmark assessment (2014 SAW (SAW/SARC 59) indicated that the stock was rebuilt in part from two very strong recent year classes in 2010 and 2012. Even with this positive 2014 assessment result, and subsequent rebuilt status, the SSC's recent evaluation of the 2015 operational assessments (SSC to NEFSC, November 17, 2015 available at: http://s3.amazonaws.com/nefmc.org/2_SSC_response_groundfish_Nov_2015_FINAL-3.pdf) indicated that there is "uncertainty and risk associated with potential overestimation of recent cohorts of GOM haddock."

Based on the 2015 update of the Gulf of Maine haddock stock assessment, the stock is estimated at 10.3 kt, well above the SSB_{MSY} estimate of 4.6 kt. There are currently two strong year classes in the population (2010 and 2013) that can be exploited by the recreational fishery, with a third (2014) expected to begin entering the recreational fishery in 2015/16.

The 2015 operational assessment of GOM Haddock stated that: "The largest source of uncertainty in the assessment is the estimated size of the 2012 and 2013 year classes. Based on the estimated selectivity patterns, these year classes are projected to be 30% selected to the fishery in 2016 and 2017 respectively. However, recent changes to the commercial and recreational minimum retention size may result in these year classes recruiting to the fishery sooner than projected." Even given the year class uncertainties, the assessment did estimate spawning stock biomass at 223% of the biomass target. The assessment also notes the uncertainty in the recreational discard estimates.

Prior to the 2014 SAW, the 2012 assessment indicated that overfishing was occurring. In addition to the assessments, there are several persistent stressors on the groundfish fishery including the mixed stock nature of the fishery, and climate change. Climate change has continued to influence the distribution and abundance of stocks in the groundfish complex.

Due to its status as rebuilt, the status quo (no action alternative) could allow the GOM haddock stock to continue to grow and, therefore, it is possible to consider the impact of the no action alternative as having a low positive impact on the GOM haddock stock. However, for the above uncertainties and concerns, NMFS believes that the continued management under no action can

not be viewed as low positive, and considers the impact as a negligible impact on the haddock stock.

Because alternatives 2, 3, and 4 also result in a substantial buffer between the expected GOM haddock catch and the sub-ACL, the no action alternative would have a negligible impact on GOM haddock compared to alternatives 2, 3, and 4.

GOM cod is considered overfished and subject to overfishing. Given the status of GOM cod, since the no action alternative would result in a continued prohibition on anglers retaining GOM cod, maintaining the status quo would have a low positive impact on GOM cod. Retaining the status quo measures would result in substantially less fishing effort and catch of GOM cod than alternatives 2, 3, and 4 and would have a low positive impact on the GOM cod.

6.1.2 Alternative 2 (RAP Recommendation)

Under alternative 2, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of July and August (wave 4). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 709 mt for GOM haddock and 132 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod.

Due to the existing 3 fish per person bag limit, recreational releases have exceeded the landings by approximately a factor of four in recent years. Increasing the possession limit, as proposed in alternatives 2, 3, and 4, would convert much of the recreational releases into landings. The biological impacts of this are somewhat uncertain since the overall stock mortality is contingent on the fraction of releases that suffer mortality. Currently 50% of the released fish are assumed to survive, though this assumption is uncertain and not based on directed field studies. A study is currently being conducted (New England Aquarium and others) that will provide a more accurate estimate of actual release survival, though results are not yet available. The accuracy of the bioeconomic model's projected catch is contingent on this assumption.

As described under no action, the impact of this alternative on GOM haddock would be negligible, since catch would continue but the model predicts that it would remain within the sub-ACL and the stock is rebuilt. When compared to the no action alternative, the impact on GOM haddock from this alternative would be negligible, since catch would increase, but would remain within the catch limit. When compared with alternatives 3 and 4, the impacts of alternative 2 would be negligible since the catch estimates of all three alternatives range within a few metric tons.

Initially, several members of the RAP believed that allowing fishermen to retain GOM cod in wave 5 (September and October, alternative 3) was a more conservative approach that would

result in less GOM cod catch because fewer fishermen would fish in the fall (Table 7). GOM cod is in poor condition, and increasing fishing effort on the stock could negatively impact its ability to rebuild. Other RAP members were concerned that opening wave 5 instead of wave 4 resulted in less fishing opportunities. Since most tourists are not fishing in September and October, businesses that rely more on tourists (such as those in Boston and on Cape Cod) would not benefit from a wave 5 opening as much as they would from a wave 4 opening. After a substantial discussion the RAP elected to re-vote and support alternative 2.

Allowing anglers to retain 1 cod could lead to increased targeting of cod and possible high-grading if people catch a larger cod and discard the smaller fish. This could increase the number of releases.

When compared to alternatives 1 and 3, the impact on cod would be low negative because alternatives 1 and 3 have lower cod catches. Because of the seasonal overlap, the impact of alternative 2 and 4 would be negligible. It should be noted however, that the difference in angler effort between alternatives 2, 3, and 4 is very slight. Also, the model projects that alternatives 2, 3, and 4 would all result in catches that are within the sub-ACL.

6.1.3 Alternative 3 (Committee Recommendation)

Under alternative 3, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of September and October (wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 707 mt for GOM haddock and 114 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod.

As described under no action, the impact of this alternative on GOM haddock would be negligible as the model predicts that catch would remain within the sub-ACL and the stock is rebuilt. When compared to the other alternatives, the impact on GOM haddock from this alternative would be negligible, since catch would increase, but would remain within the catch limit. When compared with alternatives 2 and 4, the impacts of alternative 3 would be negligible since the catch estimates of all three alternatives range within a few metric tons.

GOM cod is in poor condition, and increasing fishing effort on the stock could negatively impact its ability to rebuild. However, catch from this alternative is anticipated to remain within the sub-ACL, so impacts would be low negative. When compared to alternative 1, impacts on cod would be low negative. As explained above, cod catch from this alternative is predicted to be less than alternatives 2. As a result, the impact on cod from alternative 3, compared to alternatives 2 is low positive. Because of the seasonal overlap, the impact of alternative 2 and 4 would be negligible.

6.1.4 Alternative 4 (Council Recommendation, Preferred Alternative)

Under alternative 4, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of August and September (the second half of wave 4 and first half of wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative would likely range somewhere between alternatives 2 and 3. The impact of this alternative on GOM haddock would be negligible, as described under the no action alternative discussion, as catch would remain within the sub-ACL and the stock is rebuilt. GOM cod is in poor condition, and increasing fishing effort on the stock could impact its ability to rebuild. However, catch from this alternative is anticipated to remain within the sub-ACL, so impacts would be low negative.

When compared to the no action alternative, the impact on GOM haddock from this alternative would be negligible, since catch would increase but would remain within the catch limit. As explained above, the impacts of this alternative compared to alternatives 2 and 3 would be negligible since the effort and catch estimates are similar (because this alternative is a hybrid of 2 and 3). When compared to alternative 1, impacts on cod would be low negative, when compared to alternatives 2 and 3 the impacts would be negligible.

6.2 IMPACTS ON ENDANGERED AND OTHER PROTECTED SPECIES

Section 6.5 of the Framework 55 EA outlines in detail the protected species that are expected to be found in the affected environment of the Northeast Multispecies fishery. In addition, the Framework 55 EA provides information on anticipated impacts to protected species resulting from the operation of the commercial component of the multispecies fishery.

6.2.1 No Action (Status Quo) Alternative 1

Under the No Action (status quo) alternative, there would be no change to the recreational minimum fish size, possession limit, or fishing seasons for GOM haddock from the fishing year 2015 measures, and there would be zero recreational possession of GOM cod as analyzed in the Framework 53 and 55 EAs. As a result, fishing behavior (e.g., effort, gear time in water) in the recreational fishery would be similar to fishing year 2015.

The recreational component of the multispecies fisheries is prosecuted with hook and line gear. As protected species (ESA listed and/or MMPA protected) of marine mammals, sea turtles, or fish may occur in the affected area of the multispecies fishery, protected species interactions with hook and line gear is possible. However, records of recreational hook and line interactions with protected resources are limited for this component of the multispecies fishery. In fact, regardless of FMP, information on recreational fishing impacts on protected species is poorly documented, specifically because there is no observer program dedicated to the recreational fisheries. As a result, it is unclear to what extent recreational fisheries, and therefore, hook and line gear, affect populations of protected species. However, as a dedicated observer program exists for all

commercial fisheries, there is a wealth of information on observed protected species interactions with all fishing gear types (e.g., bottom trawl, hook and line, gillnet) and therefore, years of data assessing resultant population level effects of these interactions. Additionally, other sources of information, such as state fishing records, stranding databases, and marine mammal stock assessment reports, provide additional sources of information that can assist in better understanding, in general, hook and line interaction risks to protected species. These sources of information will serve as the best available information in our assessment of the potential effects of the recreational fishery on protected species under the No Action Alternative.

In regards to marine mammals (ESA listed and/or MMPA protected), large whale interactions (i.e., entanglement) with hook and line gear are considered rare events (i.e., from 2009-2013, only 4 confirmed hook and line interactions have been observed/reported) and to date, none of the documented interactions with this gear type have resulted in serious injury or mortality to the whale (Henry *et al.* 2015).² There have also been no documented pinniped interactions with hook and line gear, and with the exception of bottlenose dolphins (all stocks), small cetacean interactions with hook and line gear have also not been documented (Waring *et al.* 2014; Waring *et al.* 2015). Stocks of bottlenose dolphins are the only small cetacean species where interactions (ingestion or entanglement) with this gear type have been documented (Waring *et al.* 2014); however, based on the low number of observed or reported hook and line interactions to date (i.e., on average, per bottlenose stock, approximately one animal per year) these interactions appear to be rare. As a result, hook and line interactions are not likely to represent a large risk to the continued survival of each bottlenose dolphin stock.

Similar trends are also seen in documented hook and line interactions with Atlantic salmon, and Atlantic sturgeon. To date, there have been no documented interactions of Atlantic salmon in hook and line gear (Kocik *et al.* 2014; NMFS NEFSC FSB 2015). Atlantic sturgeon; however, have been reported as captured in hook and line gear associated with state fisheries, such as striped bass and shad (NMFS 2011b, NMFS 2013). As a result, Atlantic sturgeon interactions with this gear type are possible; however, based on available information to date, they are likely to be rare occurrences (NMFS NEFSC FSB 2015).

Sea turtles are known to interact with hook and line gear. Interactions primarily involve hooking, ingestion of baited hooks, or entanglement in line (NMFS 2013). Although interactions with this gear type are possible, to date, based on available reports, these interactions are more common in southern waters (i.e., Virginia and waters further south; STDN 2014). In fact, based on information provided in the Sea Turtle Disentanglement Network (STDN), since 2002, there have been no confirmed hook and line interactions in the GOM and only several confirmed cases in New England waters outside of the GOM (i.e., south of Cape Cod; STDN 2014, unpublished data). Based on this information, we expect sea turtle interactions with recreational hook and line gear in waters of the GOM to be rare to non-existent.

² Confirmed hook and line interactions could not be attributed to a commercial or recreational fishery.

Based on the above information, protected species interactions in the recreational component of the multispecies fishery are expected to be rare to non-existent. As the No Action alternative will not change current recreational fishing behavior, we do not expect the interaction risk to protected species to change from that which has been described above. As a result, the No Action will not introduce any new risks to protected species that have not been considered and assessed by NMFS (NMFS 2013; Waring *et al.* 2014; Waring *et al.* 2015) and therefore, is not expected to result in a level of protected species take that threatens the continued existence of ESA listed and/or MMPA protected species. As such, the continued existence of any protected species of marine mammal, fish, or sea turtle are not expected to be jeopardized by the No Action (NMFS 2013; Waring *et al.* 2014). For these reasons, the No Action is expected to have low negative to neutral impacts on protected species. Relative to Alternatives 2-4, impacts of the No action on protected species are expected to be neutral (see below for details).

6.2.2 Alternatives 2-4

Under alternatives 2-4, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during two months, which vary depending on the alternative.

The overall level of recreational effort from these alternatives would be expected to increase about 44 percent relative to the status quo measure. However, the effort increase is relative to fishing year 2015, in which effort was significantly reduced because of the GOM cod prohibition, 3-haddock bag limit, and haddock seasonal closures. Overall effort for fishing year 2016 is still anticipated to be less than years previous to fishing year 2015. For example, recreational fishermen took 254,949 trips in fishing year 2013 and 208,737 trips in 2014. Effort for alternatives 2-4 would likely range between 167,549 and 168,125 trips; substantially less than effort in fishing years 2013 and 2014 (this is due to the 1-cod bag limit and short season).

Based on the above information, we do not expect Alternatives 2-4 to result in impacts to protected species that differ from those considered in the No Action Alternative (Alternative 1). Specifically, as provided in the No Action, over the last 5 or more years, interactions with protected species have remained rare to non-existent. Over this time frame, as described above, recreational fishing effort has been higher than (i.e., fishing year 2013 and 2014), or similar to that being proposed under Alternatives 2-4. As hook and line interactions with protected species under recreational fishing years with higher effort (i.e., fishing year 2013 and 2014) remained rare to non-existent, Alternatives 2-4, with lower overall recreational fishing effort than years previous to 2015, is not expected to introduce any new interaction risks to protected species above and beyond that which has been considered in the No Action. For these reasons, impacts to protected resources from alternatives 2-4 are expected to be low negative to neutral. Further, relative to the No Action alternative, impacts to protected resources from alternatives 2-4 would be neutral.

6.3 PHYSICAL ENVIRONMENT/HABITAT/EFH IMPACTS

6.3.1 No Action Alternative 1 (Status Quo)

Under the No Action (status quo) alternative, there would be no change to the recreational minimum fish size, possession limit, or fishing seasons for GOM haddock from the FY 2015 measures, and there would be zero recreational possession of GOM cod as analyzed in the Framework 53 and 55 EAs. Hook and line gear, in this case with rod and reel, have poorly understood interactions with EFH; however, it does not impact EFH to the same degree as other gear used to harvest groundfish. Hook and line gear would be expected to have less impact than other fixed gear (such as bottom longline) which have medium to low impacts, because hook and line gear does not use anchors or lead lines (see section 6.1.6.4 of Framework 55). Under the No Action alternative, recreational fishing effort would be expected to be the same as fishing year 2015 and associated impacts to EFH would be expected to remain negligible.

6.3.2 Alternatives 2-4

For the reasons explained in 6.2.2 and 6.3.1, the associated impacts to EFH from these alternatives would be negligible. The impacts compared to alternative 1 (status quo) would also be negligible. Recreational fishing does not impact EFH to the same degree as other gear used to harvest groundfish. Recreational effort under these alternatives would increase compared to fishing year 2015 and the status quo, but would be less than other previous years.

6.4 HUMAN COMMUNITIES/ECONOMIC/SOCIAL ENVIRONMENT IMPACTS

6.4.1 No Action Alternative 1 (Status Quo)

Under the No Action (status quo) alternative, the minimum size for GOM haddock would remain 17 inches, the possession limit for GOM haddock would still be 3 fish, and the seasonal possession restriction for haddock would be unchanged (September 1, 2015, through October 31, 2015; and March 1, 2016, through April 30, 2016). GOM cod retention would be prohibited for recreational vessels, consistent with Framework 53. The model suggests that anglers would take approximately 117,139 trips in fishing year 2016, a 4.3 percent increase from fishing year 2015 (Table 2).

Because of the GOM cod prohibition and reduction in fishing season for GOM haddock, the number of trips was reduced dramatically in fishing year 2015 (Table 2), causing economic losses for charter/party vessels. The no action alternative would keep GOM cod catch below the sub-ACL and increase the chance that the GOM cod rebuilding plan will lead to larger sub-ACLs in future years, which would provide increased recreational access and positive economic impacts for the for-hire fleet in the long term. As explained in the paragraph above, the number of trips would increase by 4.3 percent, but, when compared to previous fishing years, is far below the normal trip count, suggesting that short term impacts of the status quo would be low negative for the fleet.

Model runs indicate that it is possible to increase effort on haddock and cod and remain within

the catch limits and rebuilding schedule (for GOM Cod; Table 6). As a result, the no action alternative would have a low negative impact when compared to alternatives 2-4 because the other alternatives would allow for additional fishing opportunities and revenues.

6.4.2 Alternative 2 (RAP Recommendation)

Under alternative 2, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of July and August (wave 4). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 709 mt for GOM haddock and 132 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod. Therefore, this alternative would allow for a substantial increase in effort while keeping catch within limits. However, GOM cod is in poor condition, and increasing fishing effort on the stock could impact its ability to rebuild and, thus, potential future fishing opportunities and revenues.

Angler trips are forecasted to increase from 112,271 in fishing year 2015 to 168,125. For this reason, and because catch from this alternative is anticipated to remain within the sub-ACL, impacts would be positive. When compared to alternative 1, impacts would be positive. Since the effort and mortality of alternatives 2, 3, and 4, are so similar, economic impacts of alternative 2, compared to alternatives 3 and 4, would be negligible.

6.4.3 Alternative 3 (Committee Recommendation)

Under alternative 3, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of September and October (wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 707 mt for GOM haddock and 114 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod. Therefore, this alternative would allow for a substantial increase in effort while keeping catch within catch limits. However, GOM cod is in poor condition, and increasing fishing effort on the stock could impact its ability to rebuild and, thus, potential future fishing opportunities and revenues.

Angler trips are forecast to increase from 112,271 in fishing year 2015 to 167,549. For this reason, and because catch from this alternative is anticipated to remain within the sub-ACL, impacts would be positive. When compared to alternative 1, impacts would be positive. Since the effort and mortality of alternatives 2, 3, and 4, are so similar, economic impacts of alternative 3, compared to alternatives 2 and 4, would be negligible.

6.4.4 Alternative 4 (Council Recommendation, Preferred Alternative)

Under alternative 4, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of August and September (the second half of wave 4 and first half of wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch and number of angler trips under this alternative would likely range somewhere between alternatives 2 and 3. For these reasons, impacts from this alternative would be positive. When compared to alternative 1, impacts would be positive. Since the effort and mortality of alternatives 2, 3, and 4, are so similar, economic impacts of alternative 4, compared to alternatives 2 and 3, would be negligible.

6.4.5 Social Impacts by Alternative

6.4.5.1 Alternative 1 (No Action)

Under the No Action (status quo) alternative, there would be no change to the recreational minimum fish size, possession limit, or fishing seasons for GOM haddock from the fishing year 2015 measures; and there would be zero recreational possession of GOM cod as analyzed in the Framework 53 and 55 EAs. Maintaining the current GOM cod and haddock management measures would likely worsen perceptions of the management program because these measures are very unpopular and, importantly the model indicates that fishing effort could dramatically increase for haddock while keeping catch of haddock and cod within the sub-ACL.

The Framework 53 and 55 EAs determined that prohibiting GOM cod possession by the recreational fleet would have negative impacts on the recreational fishery. For the party/charter vessels, cod is a popular target species for customers, so these vessels may experience declines in their businesses if customers are unwilling to fish for other stocks instead. The Framework 53 EA concluded that the Size and Demographic Characteristics of the party/charter fleet may be negatively impacted as a result for the GOM cod prohibition. Catch data from fishing year 2015 indicates that angling effort (trips) declined dramatically (Table 2).

The no action alternative would allow for some economic profits and businesses to operate, but likely not at a level that would sustain the long term impacts of a healthy recreational fishing fleet. Therefore, a rebuilt GOM cod stock would be considered a slightly low-positive to negligible impact. When compared to the other alternatives, which allow for additional fishing opportunities, it would have a low negative impact in the short term.

6.4.5.2 Alternative 2 (RAP Recommendation)

Under alternative 2, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of July and August (wave 4). The model estimates that the measures proposed under

the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 709 mt for GOM haddock and 132 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod. Therefore, this alternative would allow for a substantial increase in effort while keeping catch within catch limits. However, GOM cod is in poor condition, and increasing fishing effort on the stock could negatively impact its ability to rebuild and hence, potential future fishing opportunities and revenues. Angler trips are forecasted to increase from 112,271 in fishing year 2015 to 168,125. For these reasons, and because catch from this alternative is anticipated to remain within the sub-ACL, social impacts would be positive.

When compared to alternative 1, impacts would be positive because there are greater fishing opportunities than under alternative 1.

The only difference between alternatives 2, 3, and 4 is the 2 month window when anglers can retain 1 cod. The RAP recommended alternative 2, which opens wave 4 (July-August) to cod fishing because that is when most anglers fish. This is for several reasons, primarily weather and tourism. The weather is warmest, and seas the calmest, in the summer months. July and August is also peak tourist season for New England coastal communities. This is why the model predicts the highest trip count under this alternative, and why the RAP recommended it. However, according to the model, alternative 2 only accounts for a 0.3% increase in angler trips compared to alternative 3, and because of the monthly overlap, likely less 0.3% increase compared to alternative 4. For these reasons, the social impacts between alternatives 2, 3, and 4 are marginal.

6.4.5.3 Alternative 3 (Committee Recommendation)

Under alternative 3, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of September and October (wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative is 707 mt for GOM haddock and 114 mt for GOM cod. The sub-ACLs for these stocks in 2015 are 928 mt for haddock and 157 mt for cod. Therefore, this alternative would allow for a substantial increase in effort while keeping catch within catch limits. However, GOM cod is in poor condition, and increasing fishing effort on the stock could impact its ability to rebuild and hence, potential future fishing opportunities and revenues. Angler trips are forecasted to increase from 112,271 in fishing year 2015 to 167,549. For these reasons, and because catch from this alternative is anticipated to remain within the sub-ACL, social impacts would be positive. When compared to alternative 1, impacts from alternative 3 would be positive because there are greater fishing opportunities than under alternative 1.

The only difference between alternatives 2, 3, and 4 is the 2 month window when anglers can retain 1 cod. The groundfish committee recommended alternative 3, which opens wave 5

(September-October) to cod fishing because it could potentially extend the fishing season. As explained above, peak fishing effort is in wave 4. Allowing fishermen to retain one cod during September-October could increase effort in wave 5 and provide additional fall fishing opportunities to fishermen and revenue to businesses during a season which is normally a bit slower than the summer.

As explained in section 6.1.2, this alternative was discussed by the RAP, and in fact, was initially preferred by the RAP which eventually re-voted and recommended opening wave 4 (alternative 2). Several members of the RAP believed that allowing fishermen to retain GOM cod in wave 5 was a more conservative approach that would result in less GOM cod catch because fewer fishermen would go in the fall. Other RAP members were concerned though, that opening wave 5 instead of wave 4 resulted in less fishing opportunities. Since most tourists are not fishing in September and October, businesses that rely more on tourists (such as those in Boston and on Cape Cod) would not benefit from a wave 5 opening as much as they would from a wave 4 opening.

However, according to the model, alternative 3 only accounts for a 0.3% decrease in angler trips compared to alternative 2, and because of the monthly overlap, likely less 0.3% decrease compared to alternative 4. For these reasons, the social impacts between alternatives 2, 3, and 4 are marginal.

6.4.5.4 Alternative 4 (Council Recommendation, Preferred Alternative)

Under alternative 4, the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of August and September (the second half of wave 4 and first half of wave 5). The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch and number of angler trips under this alternative would likely range somewhere between alternatives 2 and 3. For these reasons, impacts from this alternative would be positive.

The Council selected this alternative because it represented a compromise between alternatives 2 and 3. Fishing businesses that rely on tourism, and private anglers benefit by getting to fish for cod in August, and the fishing season could potentially extend somewhat in the fall shoulder season when charter and party boat vessels continue to operate in September. When compared to alternative 1, impacts would be positive. Since the effort and mortality of alternatives 2, 3, and 4, are so similar, economic impacts of alternative 4, compared to alternatives 2 and 3, would be negligible.

7.0 CUMULATIVE EFFECTS ANALYSIS

7.1 INTRODUCTION

A cumulative effects assessment (CEA) is a required part of an EIS or EA according to the

Council on Environmental Quality (CEQ) (40 CFR part 1508.7) and NOAA's agency policy and procedures for NEPA, found in NOAA Administrative Order 216-6. The purpose of the CEA is to integrate into the impact analyses, the combined effects of many actions 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 but rather, the intent is to focus on those effects that are truly meaningful. This section serves to examine the potential direct and indirect effects of the alternatives in this supplemental EA together with past, present, and reasonably foreseeable future actions that affect the groundfish environment. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature.

This CEA assesses the combined impact of the direct and indirect effects of the proposed recreational measures with the impact from the past, present, and reasonably foreseeable future fishing actions, as well as factors external to the multispecies fishery that affect the physical, biological, and socioeconomic resource components of the groundfish environment. This analysis is focused on the VECs (see below) and because this action is supplementing the final Framework 55 EA, it relies heavily on, and incorporates by reference, the analysis contained in the attached final Framework 55 EA.

Valued Ecosystem Components (VECs): As noted in section 6.0 of Framework 55 EA and this document (Affected Environment), the VECs that exist within the groundfish fishery are identified and include the following:

- Target species
- Other species (incidental catch and bycatch);
- Habitat, including non-fishing effects; and
- Endangered and other protected species;
- Human Communities (includes economic and social effects on the fishery and fishing communities).

Temporal Scope of the VECs

While the effects of historical fisheries are considered, the temporal scope of past and present actions for regulated groundfish stocks, non-groundfish species, habitat and the human environment is primarily focused on actions that have taken place since implementation of the initial NE Multispecies FMP in 1977. An assessment using this timeframe demonstrates the changes to resources and the human environment that have resulted through management under the Council process and through U.S. prosecution of the fishery, rather than foreign fleets. For endangered and other protected species, the context is largely focused on the 1980s and 1990s, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. In terms of future actions, this analysis examines the period between the expected implementation of these recreational measures and Framework 55, the start of

fishing year 2016 (May 1, 2016) and 2020.

Geographic Scope of the VECs

The geographic scope of the analysis of impacts to regulated groundfish stocks, non-groundfish species and habitat for this action is the total range of these VECs in the Western Atlantic Ocean, as described in the Affected Environment section of the document (Section 6.0, Framework 55 EA). However, the analyses of impacts presented in this framework focuses primarily on actions related to the harvest of the managed resources. The result is a more limited geographic area used to define the core geographic scope within which the majority of harvest effort for the managed resources occurs. For endangered and protected species, the geographic range is the total range of each species (Section 6.5, Framework 55 EA).

Because the potential exists for far-reaching sociological or economic impacts on U.S. citizens who may not be directly involved in fishing for the managed resources, the overall geographic scope for human communities is defined as all U.S. human communities. Limitations on the availability of information needed to measure sociological and economic impacts at such a broad level necessitate the delineation of core boundaries for the human communities. Therefore, the geographic range for the human environment is defined as those primary and secondary ports bordering the range of the groundfish fishery (Section 6.6.6, Framework 55 EA) from the U.S.- Canada border to, and including, North Carolina.

Analysis of Total Cumulative Effects

A cumulative effects assessment ideally makes effect determinations based on the culmination of the following: (1) impacts from past, present and reasonably foreseeable future actions; PLUS (2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions); PLUS (3) impacts from the Preferred Alternative and other alternatives.

A description of past, present and reasonably foreseeable future actions is presented for the actions outlined in this supplemental EA. The baseline conditions of the resources and human community are subsequently summarized although it is important to note that beyond the stocks managed under this FMP and protected species, quantitative metrics for the baseline conditions are not available. Finally, a brief summary of the impacts from the alternatives contained in this framework is included. The culmination of all these factors is considered when making the cumulative effects assessment.

7.2 PAST, PRESENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

A summary of the effects of past, present and reasonably foreseeable future actions is presented in Section 7.6.2 of the Framework 55 EA (NEFMC 2015), including other previous actions taken in the NE Multispecies FMP. The baseline conditions of the resources and human community are also summarized here, although it is important to note that beyond the stocks managed under

this FMP and protected species, quantitative metrics for the baseline conditions are not available. Finally, a brief summary of the impacts from the alternatives contained in this supplemental EA is included. The culmination of all these factors is considered when making the cumulative effects assessment.

Most of the actions affecting this supplemental EA come from fishery-related activities (e.g., Federal fishery management actions). As expected, these activities have fairly straightforward effects on environmental conditions, and were, are, or will be taken, in large part, to improve those conditions. The Magnuson-Stevens Act stipulates that management comply with a set of National Standards that collectively serve to optimize the conditions of the human environment. Under this regulatory regime, the cumulative impacts of past, present, and future Federal fishery management actions on the VECs should be expected to result in positive long-term outcomes. Nevertheless, these actions are often associated with offsetting impacts. For example, constraining fishing effort frequently results in negative short-term socio-economic impacts for fishery participants. However, these impacts are usually necessary to bring about long-term sustainability of a given resource and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the managed resource.

Non-fishing activities were also considered when determining the combined effects from past, present and reasonably foreseeable future actions. Activities that have meaningful effects on the VECs include the introduction of chemical pollutants, sewage, and impacts from climate change such as changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment. These activities pose a risk to the all of the identified VECs in the long term. Human induced non-fishing activities that affect the VECs under consideration in this document are those that tend to be concentrated in near shore areas. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities.

7.3 BASELINE CONDITIONS FOR RESOURCES AND HUMAN COMMUNITIES

For the purposes of a CEA, the baseline conditions for resources and human communities is considered the present condition of the VECs plus the combined effects of the past, present, and reasonably foreseeable future actions. Table 8 below illustrates the baseline conditions found as part of the final Framework 55 EA cumulative effects analysis. Please refer to the cumulative effects assessment in Section 7.6.3 of the final Framework 51 EA (NEFMC 2014) to review a complete summary of the baseline conditions for each VEC.

Table 8. Summary of Baseline Conditions for Each VEC.

VEC	Past Actions	Present Actions	Reasonably Foreseeable Future Actions	Combined Effects of Past, Present, Future Actions
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	Mixed Combined effects of past actions have decreased effort, improved habitat protection, and implemented rebuilding plans when necessary. However, some stocks remain overfished	Positive Current regulations continue to manage for sustainable stocks	Positive Future actions are anticipated to continue rebuilding and strive to maintain sustainable stocks	Short-term Negative Several stocks are currently overfished, have overfishing occurring, or both Long-Term Positive Stocks are being managed to attain rebuilt status
Non-Groundfish Species	Positive Combined effects of past actions have decreased effort and improved habitat protection	Positive Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species	Positive Future actions are anticipated to continue rebuilding and target healthy stocks, thus limiting the take of discards/bycatch	Positive Continued management of directed stocks will also control incidental catch/bycatch
Endangered and Other Protected Species	Positive Combined effects of past fishery actions have reduced effort and thus interactions with protected resources	Positive Current regulations continue to control effort, thus reducing opportunities for interactions	Mixed Future regulations will likely control effort and thus protected species interactions, but as stocks improve, effort will likely increase, possibly increasing interactions	Positive Continued effort controls along with past regulations will likely help stabilize protected species interactions
Habitat	Mixed Combined effects of effort reductions and better control of non-fishing activities have been positive but fishing activities and non-fishing activities continue to reduce habitat quality	Mixed Effort reductions and better control of non-fishing activities have been positive but fishing activities and non-fishing activities continue to reduce habitat quality	Mixed Future regulations will likely control effort and thus habitat impacts but as stocks improve, effort will likely increase along with additional non-fishing activities	Mixed Continued fisheries management will likely control effort and thus fishery related habitat impacts but fishery and non-fishery related activities will continue to reduce habitat quality
Human Communities	Mixed Fishery resources have	Mixed Fishery resources	Short-term Negative As effort controls are	Short-term Negative Revenues would likely

<p>supported profitable industries and communities but increasing effort and catch limit controls have curtailed fishing opportunities</p>	<p>continue to support communities but increasing effort and catch limit controls combined with non- fishing impacts such as high fuel costs have had a negative economic impact</p>	<p>maintained or strengthened, economic impacts will be negative</p> <p>Long-term Positive</p> <p>As stocks improve, effort will likely increase which would have a positive impact</p>	<p>decline dramatically in the short term and may remain low until stocks are fully rebuilt</p> <p>Long-term Positive</p> <p>Sustainable resources should support viable communities and economies</p>
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7.4 SUMMARY OF THE IMPACTS FROM THE PROPOSED ACTIONS

Under the preferred alternative (alternative 4), the GOM haddock bag limit would increase from 3 to 15, and fishermen could retain haddock year round, except for March 1 - April 14. The GOM cod prohibition would be removed, and anglers would be able to keep 1 GOM cod (minimum size 24") during the months of August and September (the second half of wave 4 and first half of wave 5). It is anticipated that this alternative would substantially increase fishing effort compared to last year, but would result in less recreational fishing effort than fishing years 2013 and 2014.

The preferred alternative would increase haddock catch by approximately 76 percent compared to the no action alternative (status quo). This would have a negligible impact on haddock since the stock is rebuilt and catch levels would be within the sub-ACL. Cod catch would increase between 73-84 percent compared to the no action alternative. This would have a low negative impact on cod because the stock is subject to overfishing and considered overfished. Cod catch, however, is projected to remain within the annual catch limit. The model estimates that the measures proposed under the preferred alternative would increase angler effort and catch, but would restrain catch within the sub-ACL. The projected catch under this alternative would likely range somewhere between alternatives 2 and 3.

Because recreational fishing has minimal impacts on protected resources and essential fish habitat, the impacts from the proposed action would be negligible. Increasing fishing opportunities will increase fishing effort, revenue from fishing trips, and benefit fishing businesses and communities.

7.5 SUMMARY OF THE CUMULATIVE EFFECTS

The following analysis summarizes the cumulative effects on the VECs identified in this section through the consideration of past, present, and reasonably foreseeable future actions in combination with the baseline condition for resources and human communities and impacts from the proposed action.

7.5.1 Target and Other Species

As found in the cumulative effects analysis for the final Framework 55 EA (NEFMC 2016), the long-term trend in this fishery has been positive for cumulative impacts to target species. While several groundfish species remain overfished or overfishing is occurring, substantial effort reductions since implementation of the NE Multispecies FMP have allowed several stocks to rebuild and the rebuilding process for others is underway. Thus, the cumulative effect of this action is expected to provide stock growth for both species, with no anticipated significant impacts. Therefore, the combination of past actions with the proposed action would continue the sustainable harvest of other regulated species and would not be expected to result in any significant cumulative effects.

7.5.2 Endangered and Other Protected Species

Historically, the implementation of FMPs has resulted in reductions in fishing effort and as a result, past fishery management actions are thought to have had a slightly positive impact on

strategies to protect protected species. Gear entanglement continues to be a source of injury or mortality, resulting in some adverse effects on most protected species to varying degrees. As summarized in Section 7.3 of Framework 55, the current management measures, including those implemented through Amendment 16 and expected to continue to control effort and catch and, as a result, to reduce interactions with protected resources. The actions proposed in Framework 55 are expected to continue this trend. As stocks rebuild to sustainable levels, future actions may lead to increased effort, which may increase potential interactions with protected resources in the fishery overall. However, interactions between the recreational fishery and protected resources are rare, so the cumulative result of these actions to meet mortality objectives, in combination with past, present, and reasonably foreseeable future actions, would not be expected to result in any significant cumulative effects.

7.5.3 Habitat Including Non-fishing Effects

While the impact analysis in this action is focused on direct and indirect impacts to habitat and EFH, there are a number of non-fishing impacts that must be considered when assessing cumulative impacts. Many of these activities are concentrated near-shore and likely work either additively or synergistically to decrease habitat quality. Other non-fishing factors such as climate change and ocean acidification are also thought to play a role in the degradation of habitat. The effects of these actions, combined with impacts resulting from years of commercial fishing activity, have negatively affected habitat and EFH. However, the general trend in fisheries management toward effort reductions, particularly with the implementation of Amendment 16, has yielded positive impacts to habitat and EFH. Furthermore, gear used in the recreational fishery does not interact with habitat as other groundfish gears do and thus, impacts from the proposed action were found to be negligible. Based on this rationale, when considered with past, present and reasonably foreseeable future actions, the cumulative impacts from the proposed action would not be significant.

7.5.4 Human Communities

Past commercial management actions have had significant negative impacts on communities that depend on the groundfish fishery, particularly as a result of decreases in revenue. Although special programs implemented through Amendment 13 and subsequent framework actions have provided the industry additional opportunities to target healthier groundfish stocks, substantial increases in landings and revenue will likely not take place until further stock rebuilding occurs under the various rebuilding plans implemented for individual stocks in Amendment 16 and recent frameworks. Current management measures will maintain effort and catch limit controls, which together with reduced groundfish allocations have had significant negative short term economic impacts on human communities. The specifications proposed in Framework 55 are expected to have long-term positive impacts to human communities as they promote stock rebuilding, but in the short-term revenues are mixed compared to what would otherwise be expected. Slightly increased ACLs for some stocks could have positive social impacts, however, these may be offset by reductions in ACLs for other stocks and overall greater fishing effort is not likely. Given decreases or generally low catch limits for many key stocks that resulted in a fishery disaster declaration for FY 2013, the overall impact on human communities is expected to be negative as

the result of decreased revenue. However, removing the cod prohibition, as Framework 55 proposes, and expanding recreational fishing opportunities as proposed in this action, would provide some benefit to recreational fishing businesses.

8.0 LIST OF PREPARERS AND PERSONS/AGENCIES CONSULTED

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9.0 COMPLIANCE WITH APPLICABLE LAWS AND EXECUTIVE ORDERS

9.1 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT (MAGNUSON-STEVENSONS ACT)

Section 301 of the Magnuson-Stevens Act requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. The most recent FMP changes implemented by Amendment 16 address how the proposed management actions comply with the National Standards. Under Amendment 16, the NEFMC adopted conservation and management measures that would end overfishing and rebuild NE multispecies stocks to achieve, on a continuing basis, the optimum yield for NE multispecies stocks and the U.S. fishing industry using the best scientific information available consistent with National Standards 1 and 2. The NE Multispecies FMP and implementing regulations manage all 20 groundfish stocks (13 species) throughout their entire range, as required by National Standard 3. Section 9.1.1 of Amendment 16 describes how the sector measures implemented under that action do not discriminate among residents of different states consistent with National Standard 4, do not have economic allocation as their sole purpose (National Standard 5), account for variations in these fisheries (National Standard 6), avoid unnecessary duplication (National Standard 7), take into account fishing communities (National Standard 8), addresses bycatch in fisheries (National Standard 9), and promote safety at sea (National Standard 10). By proposing to meet the National Standards requirements of the Magnuson-Stevens Act through future FMP amendments and framework actions, the NEFMC will ensure that overfishing is prevented, overfished stocks are rebuilt, and the maximum benefits possible accrue to the ports and communities that depend on these fisheries and the Nation as a whole.

The proposed action would comply with all elements of the Magnuson-Stevens Act, including the National Standards, and the NE Multispecies FMP. This action is being taken to put in place recreational management measures that will better ensure the FY 2016 recreational sub-ACLs are met, but not exceeded, consistent with both the FMP and National Standard 1 guidelines (74 FR 3178; January 16, 2009). The final Framework 55 EA, completed prior to the development of revised recreational management measures did not contain an analysis of the revised recreational fishery measures for GOM cod or haddock that would be necessary to constrain catches to the recreational sub-ACLs. Therefore, this supplemental EA analyzes the impacts of the revised recreational fishery measures, in compliance with applicable laws requiring an analysis of proposed measures.

9.2 ESSENTIAL FISH HABITAT (EFH)

There are no adverse impacts associated with this action, so no EFH assessment or EFH consultation is required, as determined by a Habitat Conservation Division Review (January 22, 2016).

9.3 ENDANGERED SPECIES ACT (ESA)

As outlined in the impacts analysis of Framework 55's EA and in sections 6.2 and 7.4 of this supplement, the fishing activities anticipated to occur under this action are not expected to affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on this fishery

9.4 MARINE MAMMAL PROTECTION ACT (MMPA)

As outlined in the impacts analysis of Framework 55's EA and in sections 6.2 and 7.4 of this supplement, the recreational management measures have been determined to be consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to inhabit the management unit of the NE multispecies FMP. For further information on the potential impacts of the proposed management action on marine mammals, see Section 6.2.

9.5 NATIONAL ENVIRONMENTAL POLICY ACT

9.5.1 Finding of No Significant Impact (FONSI)

National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.27 states that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1. *Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?*

Response: The proposed action described in the supplemental EA would not jeopardize the sustainability of the target species affected by the action (GOM cod and haddock), because the measures are designed to promote sustainable recreational fishing as discussed in Section 6.1. Recreational catch proposed under these alternatives is not anticipated to exceed recreational sub-ACLs.

2. *Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?*

Response: The proposed action described in the supplemental EA is not expected to jeopardize the sustainability of any non-target species. Additional stocks taken incidentally during the GOM recreational cod and haddock fisheries would be mitigated by mortality controls in place for these species and would be expected to be minimal. The biological impacts of the proposed action are analyzed in Section 6.1.

3. *Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?*

Response: The proposed action described in the supplemental EA is not expected to allow substantial damage to the ocean and coastal habitats and/or Essential Fish Habitat (EFH) as defined under the Magnuson-Stevens Act and identified in the FMP. Because rod and reel gear is believed to have minimal interaction with habitat, impacts to EFH resulting from the proposed action would be expected to be negligible. The physical environmental/habitat impacts of the proposed action are analyzed in Section 6.3.

4. *Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?*

Response: The proposed action described in the supplemental EA is not expected to have a substantial adverse impact on public health and safety. Open ocean recreational fishing is an activity with some inherent safety risks; however, the measures contained in the proposed action are not expected to fundamentally change how recreational fisheries operate in the Gulf of Maine. As such, no adverse impact beyond those already present in recreational fishing activities is expected by the proposed action.

5. *Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?*

Response: As discussed in Section 6.2 in this supplemental EA, hook and line gear used in the recreational multispecies fishery rarely interacts with protected resources or habitat, if at all, and, as a result, impacts of the proposed action on protected resources are expected to be negligible.

6. *Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?*

Response: The proposed action described in the supplemental EA is not expected to have a substantial impact on biodiversity and ecosystem function within the Gulf of Maine. The use of ACLs are designed to tightly control catches of target and incidental regulated groundfish stocks. Catches of target and incidental catch species under this program will be consistent with the mortality targets for those stocks established by of Amendment 16 and modified through subsequent frameworks, including Framework 55. The proposed action will not have a substantial impact on predator-prey relationships or biodiversity. This action will have no more than minimal adverse impacts to EFH, because recreational hook and line gear do not interact with habitat. It is, therefore, reasonable to expect that there will not be substantial impact on biodiversity or ecosystem function.

7. *Are significant social or economic impacts interrelated with natural or physical environmental effects?*

Response: The supplemental EA documents that no significant natural or physical effects will result from the implementation of the proposed action. The action's potential economic and social impacts are also addressed in the supplemental EA (see Section 6.4) and are not projected to be significant. The proposed action is designed to reduce recreational fishing mortality to ensure overfishing does not occur and to provide continued stock growth and rebuilding for GOM cod. As described in Section 6.1, the action is expected to result in either a negligible or low-negative biological impact and would not be expected to more than minimally increase mortality on other stocks caught recreationally. The action cannot be reasonably expected to have a substantial impact on protected species or habitat (see Sections 6.2 and 6.3), as the impacts are expected to fall within the range of those resulting from Amendment 16.

8. *Are the effects on the quality of the human environment likely to be highly controversial?*

Response: The effects of the proposed action for the supplemental EA on the quality of human environment are not expected to be highly controversial. The public is aware of the revised recreational measures contemplated in the proposed action for the supplemental EA, as they were openly discussed at public meetings held New England Fishery Management Council in December 2015. The data used for recreational fisheries management, MRIP estimates of effort and catch derived from a multi-faceted survey system, remains somewhat controversial. The data are survey derived estimates, not a total census of catch and effort. As such, there are uncertainties contained with the estimation process that, in some cases, results in large confidence intervals around the estimates available. NMFS has reviewed the available fishing year 2015 catch and effort information used to evaluate the necessary catch reductions and finds

the MRIP data to have been appropriately generated, quality inspected, and made available for use, consistent with National Standard 2 of the Magnuson-Stevens Act. Plainly stated, there are no other alternate data available for recreational fisheries management. NMFS and the Council are obligated under the FMP and National Standard 1 provisions of the Magnuson-Stevens Act to implement measures with a high probability of ensuring catch limits are not exceeded in the overarching effort to prevent overfishing. The measures of the proposed action are intended to allow maximum fishing opportunities while ensuring that the fishing year 2015 recreational sub-ACLs for GOM cod and haddock are not exceeded. As such, they are consistent with both the FMP and the Magnuson-Stevens Act requirements. They provide a reasonable probability of being effective at their designed objective of constraining GOM cod and haddock catch below the fishing year 2016 catch limits. The proposed action is not expected to negatively impact habitat, target and non-target species, protected resources, or the human environment as described in Sections 6.1 through 6.4.

9. *Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, parkland, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?*

Response: The proposed action cannot be reasonably expected to result in substantial impacts to unique areas or ecological critical areas. Although it is possible that historic or cultural resources such as shipwrecks could be present in the area where the recreational fishery is prosecuted, impacts to habitat or ship wrecks from recreational gear are minimal (see Section 6.3). Further, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would result in substantial impacts to unique areas.

10. *Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?*

Response: The effects of the proposed action described in the supplemental EA on the human environment are not expected to be highly uncertain or involve unique or unknown risks. Anglers fishing for GOM cod and haddock will primarily use hook and line gear and maintain traditional fishing practices which will have no greater impact on habitat, protected species, and limit bycatch species as those conditions existing currently. The measures contemplated in this action are similar to those adopted in past management actions, and these prior actions have reduced fishing mortality on many stocks and initiated stock rebuilding. While there is a degree of uncertainty over how fishermen will react to the proposed measures, the analytic tools used to evaluate the measures attempt to take that uncertainty into account and reflect the likely results as a range of possible outcomes. Overall, the impacts of the proposed action can be, and are, described with a relative amount of certainty. Therefore, the effects on the human environment are not uncertain or involve unique or unknown risks.

11. *Is the proposed action, related to other actions with individually insignificant, but cumulatively significant impacts?*

Response: The cumulative effects analysis presented in Section 7 of this supplemental EA considers the impacts of the proposed action in combination with relevant past, present, and reasonably foreseeable future actions and concludes that no significant cumulative impacts are expected from the approval of the revised recreational fishery measures for GOM cod and haddock. Since none of the cumulative impacts of the preferred alternatives in the final Framework 55 EA or the supplemental proposed action in this supplemental EA are considered significant, and the measures under Amendment 16 are environmentally preferred, Section 7.0 of this document concluded there are no significant cumulative impacts among these related actions. Further, the proposed action would not have any significant impacts when considered individually or in conjunction with any of the other actions presented in Section 7.0 (fishing related and non-fishing related).

12. *Is the proposed action likely 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?*

Response: The fishing operations would take place on ocean waters and would not affect any human communities on the adjacent shorelines. Although there are shipwrecks present in areas where fishing occurs, including some registered on the National Register of Historic Places. Due to the minimal impact on the human environment, the effect of the approval of the revised recreational fishery measures would not cause loss or destruction of significant scientific, cultural, or historical resources.

13. *Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?*

Response: No non-indigenous species would be introduced during the proposed action because the action is not expected to expand the scope of current fishing practices and is not expected to introduce new fishing methods. No non-indigenous species would be expected to be used or transported during fishing activities

14. *Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?*

Response: No, the proposed action is not likely to establish precedent for future actions with significant effects. The proposed action adopts measures that are designed to react to the necessity to increase fishing mortality for GOM cod and haddock in order to achieve optimum yield while limiting mortality to within the proposed sub-ACLs. As such, these measures are designed to address a specific problem and are not intended to represent a decision about future

management actions that may adopt different measures.

15. *Can the proposed action reasonably be expected to threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment?*

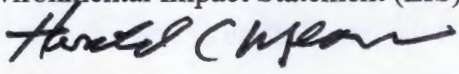
Response: The proposed action is not expected to threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. Vessels fishing in the GOM are required to comply with all local, regional, and national laws and permitting requirements.

16. *Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

Response: The proposed action is not expected to result in cumulative adverse effects that could have a substantial effect on target or non-target species. As stated in Section 6.1.4, impacts on GOM cod are expected to be low negative and haddock are expected to be negligible, while impacts to other stocks are expected to be minimal.

9.5.2 FONSI Statement

Following the analysis contained in this Supplemental EA, it is hereby determined that the approval of the revised GOM cod and haddock recreational minimum size restrictions, possession limits, and fishing seasons will not significantly impact the quality of the human environment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement (EIS) for this action is not necessary

Harold C. Meares

Regional Administrator
Greater Atlantic Regional Fisheries Office
National Marine Fisheries Service

9.6 PAPERWORK REDUCTION ACT (PRA)

The purpose of the PRA is to control and, to the extent possible, minimize the paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by, or for, the Federal Government. This action contains no new information collection requirements and, as such, no review under the PRA is necessary.

9.7 COASTAL ZONE MANAGEMENT ACT (CZMA)

Section 307(c)(1) of the CZMA requires that all Federal activities which affect any coastal use or resource be consistent with approved state coastal zone management programs (CZMP) to the maximum extent practicable. NMFS has reviewed the relevant enforceable policies of each coastal state in the NE region for this action and has determined that this action is incremental and repetitive, without any cumulative effects, and is consistent to the maximum extent practicable with the enforceable policies of the CZMP of the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina. NMFS finds this action to be consistent with the enforceable policies to manage, preserve, and protect the coastal natural resources, including fish and wildlife, and to provide recreational opportunities through public access to waters off the coastal areas. Pursuant to the general consistency determination provision codified at 15 CFR 930.36(c), NMFS sent a general consistency determination applying to the current NE Multispecies FMP, and all routine Federal actions carried out in accordance with the FMP, to the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina on October 21, 2009. North Carolina, Rhode Island, Virginia, Connecticut, New Hampshire, New Jersey, Delaware, and Pennsylvania have concurred with the general consistency determination. Consistency was inferred for those states that did not respond.

9.8 REGULATORY FLEXIBILITY ACT (RFA)

The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration (SBA) that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities.

As outlined in sections 2.0-4.0, the purpose of this action is to modify recreational fishing management measures to increase recreational fishing opportunities, effort, and catch. This action is needed to help the recreational fishery achieve its optimum yield. This action seeks to fulfill the purpose and need while meeting the biological objectives of the NE Multispecies FMP, as well as the goals and objectives set forth by the NEFMC in the NE Multispecies FMP.

The regulated entities most likely to be affected by the proposed action are private anglers, charter and party boat fishing corporations.

Other than private anglers, which are not businesses, all charter and party boat fishing businesses are considered small businesses per the SBA guidelines, therefore, the impacts of these measures are not considered to be disproportional.

All of the measures in the proposed rule are expected to have a positive economic impact on participants, as they would allow for additional fishing opportunities. Additional fishing opportunities will generate additional effort (trips). More recreational fishing trips result in more revenue for recreational fishing businesses. This rule would not impose significant negative economic impacts. No small entities would be placed at a competitive disadvantage to large entities, and the regulations would not reduce the profit for any small entities. As a result, an initial regulatory flexibility analysis is not required and none has been prepared.

9.9 INFORMATION QUALITY ACT (IQA)

Pursuant to NOAA guidelines implementing Section 515 of Public Law 106-554 (the Data Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of the information (including statistical information) disseminated by or for federal agencies. The following section addresses these requirements.

Utility

The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications.

This action is intended to describe and implement measures that would increase recreational Gulf of Maine cod and haddock catches in the fishing year that begins on May 1, 2016 (i.e., Fishing year (FY) 2016). The action is necessary to increase fishing opportunities so that recreational catches achieve optimum yield. This action would increase catches but keep mortality within the established recreational catch limits for these two stocks which, in turn, is part of the Northeast Multispecies Fishery Management Plan (FMP) requirements to prevent overfishing consistent with Magnuson-Stevens Fishery Conservation and Management Act National Standard 1 guidelines.

The public had the opportunity to review and comment on the development of management measures during the a Recreational Advisors Panel meeting on November 17, 2015, a Groundfish Oversight Committee meeting on November 18, and again during a New England Fishery Management Council (Council) meeting on December 2, 2015. Analytical and information documents for these meetings were posted and remain accessible on the Council's website: www.nefmc.org

The public will have further opportunity to comment once NMFS publishes a request for comments on the proposed rule measures in the Federal Register. The Federal Register notice will include a description of the measures and an abbreviated description of the agency's reasons

for selecting the interim measures. The Federal Register notice that announces the interim rule, supporting analytical documents, and compliance guides will be made available in printed publication, on the website for the Greater Atlantic Regional Fisheries Office (GARFO), and on Regulations.gov. These documents use consistent attribute naming and unit conventions. Technical jargon is avoided where possible, but when it must be included, it is familiar to the affected and interested public.

Integrity

Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, “Security of Automated Information Resources,” of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the United States Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity

For the purposes of the Pre-Dissemination Review, this supplemental EA is considered to be a “Natural Resource Plan.” Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, Fishery Management Plan Process; the EFH Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the NEPA.

The catch levels established for fishing year 2016 are based on assessments conducted by experts and specialists familiar with the core data sets, life history of the species, population dynamics, and statistical modeling as well as having extensive knowledge of the fishery. As such, the information used to develop the catch levels, of which a component is set aside as a recreational-specific amount, represents the best available, most recent information for the GOM cod and haddock populations.

Estimates of recreational data are provided by the Marine Recreational Information Program (MRIP), a multi-faceted survey conducted by NMFS. The survey system and underlying methodology have been extensively peer reviewed and provide a robust, unbiased estimation of recreational catch and effort. Data produced by MRIP undergo both internal and external quality assurance and quality control procedures before being made available to the public. This action makes extensive use of MRIP data to characterize fishing year 2015 catch and effort and evaluate potential fishing year 2015 recreational management measures. Analyses of potential

fishing year 2016 measures are evaluated using a peer-reviewed model developed and run by staff from the NMFS Northeast Fisheries Science Center (Center).

Clear distinctions have been drawn between policy choices and the supporting science upon which they are based. Supporting materials, information, data and analyses used for the recreational management measures action are properly referenced. Many of these supporting documents are readily available on the Council or GARFO web sites. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency.

The review process for development of this action and associated documents involves staff from the Council, NMFS, Center, and NMFS headquarters. The Center's technical review is conducted by senior level scientists with specialties in fisheries ecology, population dynamics, and biology, as well as economics and social anthropology. Review by GARFO is conducted by those with expertise in fisheries management and policy, habitat conservation, protected resources, and compliance with the applicable law. Final approval of the documents and clearance of the rule is conducted by staff at NMFS headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

9.10 REGULATORY IMPACT REVIEW

The National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan. This RIR provides a comprehensive review of the economic benefits associated with proposed regulatory actions. This analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of this analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. This RIR addresses many items in the regulatory philosophy and principles of Executive Order (EO) 12866.

9.10.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this action is found under section 3.0 of this supplemental EA. This action is taken under the authority of the Magnuson-Stevens Act and regulations at 50 CFR part 648.

9.10.2 Description of the Fishery

A description of the GOM cod and haddock recreational fisheries is presented in section 6.6.9.3 of the Framework 55 EA. A description of recreational catch statistics is presented in 5.1 of this EA.

9.10.3 A Statement of the Problem

A statement of the problem for resolution is presented under sections 2.0 and 3.0.

9.10.4 Regulatory Impact Review Impacts

The Preferred Alternative 4 measures are expected to have positive economic impacts in the short-term. Alternatives 2, 3, and 4 each increase the recreational haddock bag limit from 3 to 15 fish for most of the fishing year. This will increase fishing opportunities and catch in a manner that is commensurate with increased catch limits. Alternative 4 would implement a daily bag limit of 1, 24” cod during the months of August and September. This is a hybrid of alternatives 2 and 3. Compared with the status quo this would increase fishing opportunities for cod, but retain cod catch within the sub-ACL. Alternative 4 will provide both short and long term economic and social benefits to recreational fishermen and fishing communities.

The Preferred Alternative is expected to have negligible impacts on GOM haddock and low negative impacts on GOM cod. Catches, however, are anticipated to remain within the legally required sub-ACLs. The preferred alternative is expected to have negligible impacts on protected resources, including marine mammals and endangered species, as well as negligible impacts on essential fish habitat.

9.10.5 Evaluation of Significance Under Executive Order 12866

The purpose of Executive Order (E.O.) 12866 is to enhance planning and coordination with respect to new and existing regulations. This E.O. requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be “significant.” Section 9.1 of this document represents the RIR, which includes an assessment of the costs and benefits of the Proposed Action in accordance with the guidelines established by E.O. 12866.

E.O. 12866 requires a review of proposed regulations to determine whether or not the expected effects would be significant, where a significant action is any regulatory action that may:

- Have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the Executive Order.

The Preferred Alternative 4 measures are expected to have positive short-term impacts for private anglers, the for-hire fleet, and businesses that support recreational fishing as a result of the estimated increase in angler trips resulting from the bag limit increases for GOM cod and haddock. This comes in the form of increased access for private anglers and increased revenues

to the for-hire fleet and associated businesses.

Long-term positive impacts will also accrue from the biological effects of the proposed actions. As explained in 6.1.2, the preferred measures are expected to result in FY 2016 recreational GOM cod and haddock catches that will not exceed the sub-ACLs for cod or haddock. Although the long-term effects of these alternatives are less clear or quantifiable from a social and economic perspective, rebuilt stocks would presumably provide anglers with the ability to increase catch and possibly rates of kept fish resulting in higher overall welfare benefits to anglers and the Nation as a whole. Therefore, this action should not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, this action should not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the GOM cod and haddock fisheries in the EEZ. Third, this action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their participants. Lastly, the proposed action does not raise novel legal or policy issues arising out of legal mandates or the President's priorities.

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