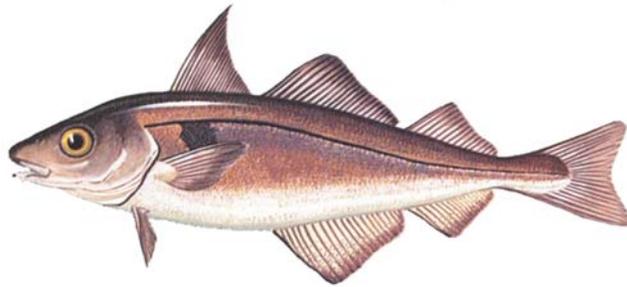


Recreational Measures for Gulf of Maine Cod and Haddock for Fishing Year 2017



Melanogrammus aeglefinus



Gadus morhua

Supplemental Information Report

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1.0 Introduction

NOAA's National Marine Fisheries Service (NMFS) is proposing to implement recreational measures for Gulf of Maine (GOM) cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*) for the 2017 fishing year 2017. The intended effect of this action is to reduce catch of cod and increase catch of haddock. This action is necessary to ensure fishing year 2017 recreational catch limits are achieved, but not exceeded.

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

The accountability measures outlined in the FMP authorize the Regional Administrator, in consultation with the New England Fishery Management Council (Council), to modify the recreational management measures for the upcoming fishing year to ensure that the sub-ACL is achieved, but not exceeded. The provisions authorizing this action can be found in 50 CFR 648.89(f)(3).

2.0 Purpose of the Supplemental Information Report

The purpose of a Supplemental Information Report (SIR) is to determine if the new measures will require further analysis other than those prepared previously.

In making a determination on the need for additional analysis under the National Environmental Policy Act (NEPA), we have considered and have been guided by the Council on Environmental Quality (CEQ) NEPA regulations and applicable case law. The CEQ's regulations state that "[a]gencies shall prepare supplements to either draft or final environmental impact statements if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 Code of Federal Regulations (C.F.R.) § 1502.09(c) (emphasis added). In addition, we have considered the CEQ's "significance" criteria at 40 C.F.R. § 1508.27 to determine whether any new circumstances or information are "significant," which could require a new EA.

This document describes and compares the current management measures and the proposed modifications in the context of the environmental assessment (EA) completed for Framework Adjustment 55 to the Northeast Multispecies Fishery Management Plan (FMP) that supported the recreational allocations and the supplemental EA that supported the 2016 recreational measures. We then consider whether there are any significant new circumstances or information that are relevant to environmental concerns and that have a bearing on the interim action or its impacts.

3.0 Proposed New Action

The proposed measures are more restrictive than the current measures because the measures in place for GOM cod and haddock are not expected to constrain fishing year 2017 catch to the sub-ACLs. In 2016, the cod recreational sub-ACL was exceeded by 92 percent. Haddock catch only slightly exceeded the sub-ACL (by 15 percent). For 2017, the recreational sub-ACL for GOM haddock increases 25 percent,

from 928 mt to 1,160 mt, and the recreational sub-ACL for GOM cod remains unchanged at 157 mt. Based on the most recent information available, we expect higher numbers of age 3 and 4 fish in the population this year, which will result in higher catch rates. Under the current measures, this would result in catch that exceeds the recreational sub-ACLs, despite the increase to the haddock sub-ACL.

Recreational possession of GOM cod would be prohibited. The minimum size for GOM haddock would be unchanged, but the bag limit would be reduced from 15 fish to 12 fish, and a fall closed season would be added to the existing spring closure. We are considering two different fall closures, as described in more detail below. The recreational measures we are considering for 2017 for GOM cod and haddock are specified in Table 1.

Table 1. Proposed GOM Cod and Haddock Recreational Management Measures for Fishing Year 2017.

2017 Measures	Haddock			Cod		
	Haddock Possession Limit	Minimum Fish Size	Closed Season	Cod Possession Limit	Minimum Fish Size	Closed Season
Council Recommended	12 fish per angler	17 inches	3/1 - 4/14 9/17 - 10/31	N/A	N/A	5/1 - 4/30
Additional NMFS Option	12 fish per angler	17 inches	3/1 - 4/14 9/1 - 9/30	N/A	N/A	5/1 - 4/30

4.0 Background of Original Action

In 2016, Framework 55 set annual catch limits (ACL) and recreational sub-ACLs for fishing years 2016-2018. The Framework 55 environmental assessment (EA) developed by the New England Fishery Management Council analyzed the biological effects of the ACLs. In 2016, the recreational sub-ACL for GOM cod increased 30 percent, and the recreational sub-ACL for GOM haddock increased 149 percent, from the 2015 levels.

After consultation with the Council, NMFS set recreational management measures for 2016 that were more liberal than the previous 2015 measures. A supplemental EA developed by NMFS analyzed the socioeconomic impacts of a range of recreational measures. The action was intended to increase recreational fishing opportunities for cod and haddock consistent with the 2016 catch limits for these stocks, while ensuring the quotas were not exceeded. Accordingly, the recreational measures set for 2016 were more liberal than the 2015 measures to increase recreational fishing opportunities and catch. However, in 2016, cod catch increased more than predicted, and the recreational sub-ACL was exceeded by 92 percent. Haddock catch slightly exceeded the sub-ACL (by 15 percent).

Recent Catch Information

Recent catch estimates for both GOM cod and haddock are provided in Table 2. Note the dramatic increase in catches in fishing year 2016. This was related to the increased 15-fish haddock bag limit and reduced seasonal closures, but also to increases in the average size of fish caught. In particular, the average size of cod caught increased more than 30 percent, from 2.5 pounds to 3.3 pounds.

Table 2. Gulf of Maine Recreational Catch Estimates.¹

GOM Stock	2015 Catch (mt)	2016 Catch (mt)
Cod	85	302
Haddock	382	1,066

¹ Source: Available MRIP data as of January 3, 2017.

As shown in Table 3, compared to the 2016 catch, the 2017 sub-ACLs would allow for a 9-percent increase in haddock catch, but would require a 48-percent reduction in cod catch.

Table 3. Fishing Year 2016 Catch Compared to Fishing Year 2016 and 2017 sub-ACLs.

GOM Stock	2016 Catch (mt)	2016 sub- ACL (mt)	Catch of 2016 sub-ACL (percent)	2017 sub- ACL (mt)	Change in 2016 Catch to reach 2017 sub-ACL (percent)
Cod	302	157	192	157	-48
Haddock	1,066	928	115	1,160	+9

Effort Changes

Table 4 contains estimates of the number angler trips (the standard measure of recreational effort) that would be expected in 2017 under the proposed measures. Table 4 also includes the number of angler trips that occurred in recent years for comparison. There was a dramatic increase in angler trips from 2015 (132,080) to 2016 (167,204), likely as the result of the more liberal measures implemented in 2016. For 2017, the bioeconomic model predicts the status quo measures would result in a further increase in angler trips to 173,259. Both sets of proposed measures for 2017 are predicted to result in a 9-percent decrease in angler trips compared to 2016. The difference between the number of angler trips predicted for the Council’s recommended measures (153,802) and the number of angler trips predicted for the additional NMFS option (153,410) is less than 1 percent. This predicted difference in angler trips would have a negligible biological impact.

Table 4. Projected Fishing Year 2017 Angler Trips Under Proposed Measures, and Angler Trips from Recent Years.

Measures	Angler Trips
2015	132,080
2016	167,204
Council Recommendation	153,802
Additional NMFS Option	153,410

5.0 Changes from the Original Action

A peer-reviewed bioeconomic model, developed by the Northeast Fisheries Science Center, was used to estimate 2017 recreational GOM cod and haddock mortality under various combinations of minimum sizes, possession limits, and closed seasons. Even when incorporating zero possession of GOM cod, the model estimates that the 2016 recreational measures for GOM haddock are not expected to constrain the catch of haddock, or the bycatch of cod, to the 2017 catch limits (see Section 4).

2017 Recreational Proposed Measures

NMFS consulted with the Council, and its Recreational Advisory Panel (RAP), in January 2017. The RAP met on January 18, 2017, to review catch projections under various scenarios of changed measures for fishing year 2017. The RAP discussed a number of options, and specifically decided against any options that would include closures in May or that would set different measures for the private and for-hire modes. Ultimately, the RAP recommended an option that prohibited cod possession, and for haddock maintained the 17-inch minimum size, reduced the bag limit from 15 to 12 fish, and added a fall closure from September 17 through October 31 to the existing spring closure. On January 25, 2017, the Council discussed recreational measures for 2017. The Council declined the Groundfish Oversight Committee's suggestion to implement separate measures for the private and for-hire modes at this time in deference to having a larger public process to consider the concept. Ultimately, the Council recommended we implement the option recommended by the RAP. The model predicts the recommended measures would result in fishing year 2017 recreational GOM cod and haddock catches that are within the sub-ACLs (see Table 5), as explained further below.

NMFS is also considering a slightly different fall closure time period (shown in Table 5 as the Additional NMFS Option). As shown in Table 5, the model predicts shifting from a 6-week fall closure (9/17 – 10/31), as recommended by the Council, to a 4-week September closure (9/1 – 9/30), would slightly reduce haddock catch and increase the probability that haddock catch would not exceed the sub-ACL by 20 percentage points. The key difference is that closing the entirety of September eliminates a period of particularly high recreational effort, and the resulting high catches, associated with Labor Day weekend. Thus, a shorter fall closure could be a more conservative approach; however, this closure would be at the expense of a holiday weekend that is popular with private anglers and economically important to a portion of the for-hire fleet. The model predicts the different fall closure would also result in fishing year 2017 recreational GOM cod and haddock catches that would not exceed the sub-ACLs (see Table 5).

Regardless of which seasonal closure is implemented, the proposed measures for 2017 are different than those in place in 2016, but are projected to constrain catch to levels below the sub-ACLs for 2017 (see Table 5).

Table 5. Projected Fishing Year 2017 recreational cod and haddock catch under proposed measures.

2017 Measures	Haddock Possession Limit	Minimum Fish Size	Closed Season	Predicted Haddock Catch (mt)	Probability Haddock Catch Below sub-ACL (percent)	Predicted Cod Catch (mt)	Probability Cod Catch Below sub-ACL (percent)
Council Recommended	12 fish per angler	17 inches	3/1 - 4/14 9/17 - 10/31	1,160	50	147	78
Additional NMFS Option	12 fish per angler	17 inches	3/1 - 4/14 9/1 - 9/30	1,137	70	149	78

Recreational catch and effort data are estimated by the Marine Recreational Information Program (MRIP), a comprehensive, multi-faceted survey system administered by NMFS that collects data from recreational anglers and captains. The bioeconomic model's predicted probabilities that catch will remain at or below the sub-ACLs are informative. However, we are using preliminary MRIP data that will change when vessel trip report data from the for-hire fleet is incorporated (after May 1). MRIP data are highly variable from year to year. This combination of factors makes it difficult for the model to produce consistent predictions and to assess the underlying reasons for the discrepancies between predicted and actual catch. Historically, while the model's predictive power increases each year, the model underestimates recreational catch. Recent measures have generally resulted in catch close to the sub-ACLs; however, a number of overages have still occurred. The recent overages of the recreational sub-ACLs have not led to overage of the overall annual catch limit, nor have they had negative biological effects.

6.0 NEPA Compliance and Supporting Analyses

The Framework 55 EA evaluated the environmental impacts of setting specifications for all groundfish stocks, including the recreational sub-ACLs, for fishing years 2016-2018. This included biological impacts, impacts on essential fish habitat, impacts on endangered and other protected species, the economic impacts, the social impacts, and the cumulative effects. As required by NEPA, the Preferred Alternatives were compared to the No Action option and other options. Because the No Action option would have resulted in little fishing effort, comparisons were also made between the Preferred Alternatives and the status quo to enable a more realistic analysis of potential impacts.

The conclusion reached in the Framework 55 EA is that the preferred measures, catch limits and management measures including the recreational sub-ACLs for GOM cod and haddock for fishing year 2017, would not significantly impact the quality of the human environment. Biological impacts to GOM cod and haddock were determined to be positive. Protected species interactions in the recreational component of the multispecies fishery are expected to be rare to non-existent. Recreational hook and line fishing gear has poorly understood interactions with benthic habitats, but is believed to have significantly less impact than commercial longline gear which is known to have low to moderate impacts on habitat. Economic impacts on the recreational fishery were considered positive as the sub-ACLs could allow for increased recreational fishing effort and non-economic social impacts were considered neutral. The cumulative effects were expected to be a long-term positive impact.

The Framework 55 supplemental EA for 2016 Recreational measures analyzed the impact of revised measures for the GOM cod and haddock recreational fishery on the physical, biological, habitat, and socio-economic ecosystem components. The options included in the supplemental EA spanned a range that encompasses the measures proposed for fishing year 2017 (see Table 6). Therefore, the environmental impact associated with the recommended 2017 recreational sub-ACLs, and 2017 management measures are substantially the same as what was analyzed in the Framework 55 EA, and the Framework 55 supplemental EA.

Table 6. Recreational Management Measures Analyzed in the Framework 55 Supplemental EA and Measures Proposed for Fishing Year 2017.

Measures	Cod			Haddock		
	Bag Limit	Minimum Size	Closed Season	Bag Limit	Minimum Size	Closed Season
Analyzed in Supplement to the Framework 55 EA	0	N/A	Year-round	3	17	September-October March 1 - April 30
	1	24	May - June September- April	15	17	March 1 - April 15
	1	24	May - August November - April	15	17	March 1 - April 15
	1	24	May - July October - April	15	17	March 1 - April 15
Proposed for 2017	0	N/A	Year-round	12	17	March 1 - April 14 September 1 - 30
	0	N/A	Year-round	12	17	March 1 - April 14 September 17 - October 31

7.0 Regulatory Impact Review

A Regulatory Impact Review (RIR) is required for all regulatory actions that either implement a new FMP or significantly amend an existing plan. This RIR provides a comprehensive review of the changes to 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 options 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 options 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 (E.O.) 12866.

7.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this action is found under sections 1.0 and 3.0. This action is taken under the authority of the Magnuson-Stevens Act and regulations at 50 CFR part 648.

7.2 Description of the Fishery

A description of the GOM cod and haddock recreational fishery is presented in section 6.6 of the Framework 55 EA. A description of recreational catch statistics is presented in this section. An analysis of permit data is found below.

Recent Catch Information

Recent catch estimates for both GOM cod and haddock are provided in Table 7. Note the dramatic increase in catch in fishing year 2016. This was related to the increased 15-fish haddock bag limit and reduced seasonal closures, but also to increases in the average size of fish caught. In particular, the average size of cod caught increased more than 30 percent, from 2.5 pounds to 3.3 pounds.

Table 7: Gulf of Maine Recreational Catch Estimates.

Gulf of Maine Recreational Catch Estimates ¹	FY2015	FY2016 ²
Cod/Haddock Angler Trips ³	132,080	167,204
Cod Catch (numbers, a+b1+b2)	502,066	1,018,743
Cod Kept/Released Dead (numbers, a+b1)	5,774	38,503
Cod Released Alive (numbers, b2)	496,292	980,240
Cod Removals (numbers, a+b1+(0.15*b2))	80,218	185,539
Cod Removals (weight ⁴ , mt)	85	302
Cod Avg. Catch Per Trip (numbers)	4	6
Cod Avg. Weight of Caught Fish (lbs)	3	3
Haddock Catch (numbers, a+b1+b2)	727,888	1,745,050
Haddock Kept/Released Dead (numbers, a+b1)	222,149	573,207
Haddock Released Alive (numbers, b2)	505,739	1,171,843
Haddock Removals (numbers, a+b1+(0.5*b2))	475,019	1,159,129
Haddock Removals (weight ³ , mt)	382	1,066
Haddock Avg. Catch Per Trip (numbers)	6	10
Haddock Avg. Weight of Caught Fish (lbs)	2	2

¹Source: Available MRIP data as of Jan. 3, 2017

²Wave 6, 2015 and wave 2, 2016 used as proxies for those waves in FY2016.

³Angler trips = number of trips that targeted and/or caught cod or haddock

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

Catch by Recreational Vessel Type

Tables 8 and 9 detail haddock and cod catch by recreational vessel type. Overall, catch of cod and haddock were up dramatically among private vessels and for-hire vessels. Catch of cod by head boats and private anglers increased in fishing year 2016. Charter boats showed a decline in cod catch. Haddock catch increased for charter boats and private anglers, while head boats had a decline in haddock catch. However, the catch by for-hire vessels may be revised when vessel trip report information is incorporated in the MRIP data.

Table 8. Gulf of Maine Haddock Recreational Catch by Vessel Type (Including Shore Fishing).

Head Boats	FY2015	FY2016
Haddock Catch (numbers, a+b1+b2)	378,602	315,484
Haddock Kept/Released Dead (numbers, a+b1)	139,401	128,729
Haddock Released Alive (numbers, b2)	239,200	186,755
Haddock Removals (numbers, a+b1+(0.5*b2))	259,001	222,107
Haddock Avg. Catch Per Angler Trip (numbers) ¹	7	8
Charter Boats		
Haddock Catch (numbers, a+b1+b2)	178,390	209,474
Haddock Kept/Released Dead (numbers, a+b1)	60,979	111,593
Haddock Released Alive (numbers, b2)	117,411	97,882
Haddock Removals (numbers, a+b1+(0.5*b2))	119,685	160,534
Haddock Avg. Catch Per Angler Trip (numbers) ¹	7	14
Private Boats		
Haddock Catch (numbers, a+b1+b2)	170,897	1,217,025
Haddock Kept/Released Dead (numbers, a+b1)	21,768	332,886
Haddock Released Alive (numbers, b2)	149,128	884,139
Haddock Removals (numbers, a+b1+(0.5*b2))	96,332	774,956
Haddock Avg. Catch Per Angler Trip (numbers) ¹	3	11
Shore-Based Fishing		
Haddock Catch (numbers, a+b1+b2)	0	3,067
Haddock Kept/Released Dead (numbers, a+b1)	0	0
Haddock Released Alive (numbers, b2)	0	3,067
Haddock Removals (numbers, a+b1+(0.5*b2))	0	1,534

¹Based on the number of angler trips that targeted and/or caught cod or haddock.

Table 9. Gulf of Maine Cod Recreational Catch by Vessel Type.

Head Boats	FY2015	FY2016
Cod Catch (numbers, a+b1+b2)	161,979	197,290
Cod Kept/Released Dead (numbers, a+b1)	3,345	6,931
Cod Released Alive (numbers, b2)	158,634	190,358
Cod Removals (numbers, a+b1+(0.15*b2))	27,140	35,485
Cod Avg. Catch Per Angler Trip (numbers) ¹	3	5
Charter Boats		
Cod Catch (numbers, a+b1+b2)	162,203	148,273
Cod Kept/Released Dead (numbers, a+b1)	0	6,278
Cod Released Alive (numbers, b2)	162,203	141,995
Cod Removals (numbers, a+b1+(0.15*b2))	24,330	27,577
Cod Avg. Catch Per Angler Trip (numbers) ¹	6	10
Private Boats		
Cod Catch (numbers, a+b1+b2)	177,883	673,181
Cod Kept/Released Dead (numbers, a+b1)	2,429	25,295
Cod Released Alive (numbers, b2)	175,454	647,886
Cod Removals (numbers, a+b1+(0.15*b2))	28,747	122,478
Cod Avg. Catch Per Angler Trip (numbers) ¹	3	6

¹Based on the number of angler trips that targeted and/or caught cod or haddock.

7.3 A Statement of the Problem

This action proposes 2017 recreational management measures for GOM cod and haddock. The proposed measures are more restrictive than the 2016 measures to ensure fishing year 2017 recreational catch limits are not exceeded. Recreational possession of GOM cod would be prohibited. The minimum size for GOM haddock would be unchanged, but the haddock bag limit would be reduced from 15 fish to 12 fish, and an additional closed season for haddock would be implemented in the fall. For the reasons explained below, we are proposing two different fall closures for comment. The proposed restrictions are proactive AMs designed to achieve, but not exceed, the recreational sub-ACLs. This fishery has used AMs that models have predicted have at least a 50-percent probability of restricting catch to the sub-ACL. For the proposed measures, a peer-reviewed bioeconomic model, developed by the Northeast Fisheries Science Center, was used to estimate 2017 recreational GOM cod and haddock mortality under various combinations of minimum sizes, possession limits, and closed seasons.

The bioeconomic model’s predicted probabilities that catch will remain at or below the sub-ACLs are informative. However, we are using preliminary MRIP data that will change when vessel trip report data from the for-hire fleet is incorporated (after May 1). MRIP estimates are highly variable from year to year. This combination of factors makes it difficult for the model to produce consistent predictions and to assess the underlying reasons for the discrepancies between predicted and actual catch. Historically,

while the model’s predictive power increases each year, the model underestimates recreational catch. Recent measures have generally resulted in catch close to the sub-ACLs; however, a number of overages have still occurred. Therefore, in addition to the Council’s recommended haddock measures, we are proposing an additional and more conservative set of measures. The proposed rule will solicit comment on both sets of proposed measures to inform a final decision. However, the estimated economic impacts from both sets of measures (see below) are nearly identical.

7.4 Regulatory Impact Review Impacts

Net Economic Benefits

The peer-reviewed bioeconomic simulation model was used to estimate angler net benefits associated with the three options under consideration. A brief description of the model is contained in section 6.1 of the Framework 55 supplemental EA. Table 10 shows estimated angler net benefits (i.e., angler consumer surplus or welfare) in fishing year 2017 for each of the options under consideration (including status quo). Angler welfare is highest under the status quo measures (\$55.0 million), followed by the Council Recommended action (\$43.2 million), and lastly, the Additional NMFS option (\$43.1 million). Although angler welfare in 2017 is estimated to be considerably higher under the status quo option, angler net benefits in subsequent fishing years are likely to decline relative to the other two options. Under the status quo measures, recreational fishing mortality is predicted to exceed the fishing year 2017 cod sub-ACL by 86 percent and the haddock sub-ACL by 12 percent. If the fishing year 2017 recreational sub-ACLs are exceeded, more restrictive recreational measures will be implemented in future fishing years, resulting in declining angler welfare over the long term.

Efforts were made to calculate the net benefits (i.e., producer surplus) of the for-hire fishing fleet in fishing year 2017 under each of the options, but assumptions regarding how the proposed regulations would affect net changes in the number of for-hire boat trips in fishing year 2017 could not be validated so the analysis is not included here. As a result, total net benefits to the Nation for fishing year 2017 or for subsequent years could not be calculated for each option. However, estimated changes in gross revenues for each of the for-hire fishing businesses estimated to be impacted by the proposed regulations are calculated below.

Table 10. Estimated Angler Net Benefits in Fishing Year 2017.

Measures	Angler Consumer Surplus (Millions of Dollars)
Council Recommended	43.2
Additional NMFS Option	43.1
Status Quo	55.0

Short-Term Regional Economic Impacts

An input-output model was employed to assess the potential multiplier effects (sales, income, and employment) associated with implementation of the proposed management options to businesses that support marine recreational fishing activities in New England. Anglers’ trip-related purchases have a direct effect on the sales, income, and employment of businesses that supply goods and services to saltwater fishermen. Businesses providing these goods and services must also purchase goods and

services and hire employees, which in turn, affects the sales, income, and employment of many additional businesses.

Three levels of economic impacts result from purchases by saltwater fishermen: (1) direct, (2) indirect, and (3) induced. Direct effects occur when anglers spend money at retail and service-oriented fishing businesses (e.g., purchases of ice at convenience stores or access fees paid to owners of for-hire vessels). Indirect effects occur as the retail and service sectors purchase fishing supplies from wholesale trade businesses and manufacturers and pay operating expenditures (e.g., the retailer must purchase fishing rods from the manufacturer or wholesaler and pay electric bills). These secondary industries must then, in turn, purchase additional supplies and this cycle of industry to industry purchasing continues until the amount remaining within the region of interest is negligible. Finally, induced effects result when employees of the direct and indirect sectors make purchases from retailers and service establishments in the normal course of household consumption (e.g., convenience store employees spend money on groceries and pay federal and state taxes). The summation of direct, indirect, and induced effects are total effects.

Input-output (I/O) analysis is the most common approach available for determining the direct, indirect, and induced effects associated with an overall change in economic activity in a particular region. For the analysis presented here, a ready-made regional I/O modeling system called IMPLAN Pro (Impact Analysis for Planning) was used to estimate the economic impacts associated with each of the two options under consideration (IMPLAN Group LLC, 2016). The IMPLAN Pro system is a widely used, nationally recognized tool that provides detailed purchasing information for 536 industrial sectors and a user-friendly media for customizing I/O models to specific applications.

Angler expenditures in New England for marine fishing were obtained from Lovell, Steinback, and Hilger (2013). These expenditure data were produced from extensive surveys of marine recreational fishermen in New England in 2011 (Table 11). The surveys were conducted as part of MRIP. Average fishing trip expenditures were provided for each state and mode of fishing (i.e., private boat, party/charter, and shore) in New England in 2011. Trip-related expenditure categories shown in the report included auto fuel, auto rental, bait, boat rental, charter fees, crew tips, fish processing, food from grocery stores, food from restaurants, gifts and souvenirs, ice, lodging, parking and site access fees, public transportation, and tournament fees. In addition to trip-related expenditures, the report also shows estimated anglers' expenditures for semi-durable items (e.g., rods, reels, lines, clothing, etc.) and durable goods (e.g., motor boats, vehicles, etc.). However, expenditures for these items are assumed to remain the same in the I/O model since semi-durable and durable items can be used for many fishing trips.

Table 11. Average Daily Trip Expenditures by Recreational Fishermen in New England by Trip Type, in 2011¹.

Expenditures	Value in Dollars		
	For-Hire	Private/Rental	Shore
Auto Fuel	24.92	13.5	13.25
Auto Rental	0.43	0	0.09
Bait	0.47	4.98	5.09
Boat Rental	0.52	18.4	0
Charter Fees	113.44	0.05	0

Crew Tips	9.95	0	0
Fish Processing	0.01	0	0
Food from Grocery Stores	12.09	6.11	6.22
Food from Restaurants	11.25	2.28	4.07
Gifts & Souvenirs	3.57	0.03	0.57
Ice	0.56	1.04	0.57
Lodging	17.42	1.35	7.69
Parking & Site Access	0.67	0.82	1.27
Public Transportation	1.56	0.05	0.15
Tournament Fees	3.77	0	0
Total	200.63	48.62	38.96

¹Source: Lovell et al. 2013.

The economic impacts associated with each of the options were estimated by applying the product of the model-generated number of angler trips that are predicted to occur and the average trip expenditure estimates from Lovell et al. (2013) - adjusted to 2017 dollars using the consumer price index - to the appropriate IMPLAN sector multipliers in each state. The multipliers measure the direct, indirect, and induced relationships between industries and households. Input-output models require all values to be in producer prices (manufacturer prices) so each of the angler expenditure categories was associated with its corresponding IMPLAN producing sector. In IMPLAN, margins are used to convert the retail-level prices paid by anglers into the appropriate producer values. Margins ensure that the correct value is assigned to products as they move from producers, to wholesalers, through the transportation sectors, and finally on to retail establishments.

Potential economic impacts are estimated for sales, income, and employment. Sales reflect the aggregate total dollar sales generated from expenditures by anglers in New England. Income represents aggregate wages, salaries, benefits, and proprietary income generated from angler expenditures in the coastal New England states. Employment includes both full-time and part-time workers and is expressed as total New England jobs.

The first step was to determine the estimated number of angler trips that are predicted to occur under each option. These estimates are produced from the bioeconomic model simulations, but the model is unable to distinguish between private boat angler-trips and for-hire boat angler-trips which is needed to appropriately assign costs to each type of trip. Thus, the proportion of angler effort by mode in fishing year 2016 was used to apportion the model-generated number of angler trips that will take place in fishing year 2017 to private boats and for-hire boats, under each option (Table 12).

Table 12. Predicted Number of Angler Trips that will Target or Catch GOM Cod or Haddock in Fishing Year 2017, by Mode.

Measures	Angler Trips	
	Private Boats	For-Hire Boats
Council Recommended	104,585	49,217
Additional NMFS Option	104,319	49,091

Status Quo	117,816	55,443
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The second step was to multiply the average trip expenditure estimates shown in Table 11 for private boat anglers and for-hire anglers by the predicted angler trips shown in Table 12. Total angler expenditures by category and mode were then applied to the appropriate IMPLAN sector multipliers to estimate the total economic impacts associated with implementation of each of the proposed management options to the overall economy in New England (Table 13).

Table 2. New England Regional Economic Impacts¹.

Measures	Sales	Income	Employment
	Millions of Dollars		Number of Jobs
Council Recommended	26.8	9.2	290
Additional NMFS Option	26.7	9.2	290
Status Quo	30.2	10.4	327

¹ The sales and income impacts were adjusted to their 2014 equivalents using the Bureau of Labor’s Consumer Price Index.

The sales, income, and employment generated from the status quo measures are higher than the proposed action options. The status quo measures are estimated to result in \$30.2 million in sales, \$10.4 million in income, and support 327 jobs across the coastal New England states in fishing year 2017. The economic activity supported by the proposed action options are virtually identical and only marginally lower than estimated for the status quo measures.

7.5 Evaluation of Significance Under E.O. 12866

The purpose of E.O. 12866 is to enhance planning and coordination with respect to new and existing regulations. This E.O. requires the Office of Management and Budget to review regulatory programs that are considered to be “significant.” Section 7.4 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 following discussion is limited to a determination of significance of the proposed action based solely on economic criteria.

The measures considered in this regulatory action will not affect gross revenues or indirect and induced effects generated by the for-hire, private boat, or supporting sectors offering goods and services to anglers engaged in the GOM cod or haddock fishery to the extent that an annual \$100 million economic impact will occur in this fishery. Table 13 shows that the measures proposed under both the Council Recommended and the Additional NMFS option are estimated to result in a total decline of about \$3.5 million in sales to directly and indirectly affected industries, relative to the status quo measures. The net economic loss would be \$13.2 million as calculated by summing the \$12 million net loss in angler benefits shown in Table 10 and the \$1.2 million reduction in income shown in Table 13.

The long-term biological effects of the proposed action options are clear: GOM cod and haddock will continue to be managed sustainably as a result of the accumulated effects of these measures applied over time. Although the long-term effects of these options are less clear or quantifiable from a social and economic perspective, rebuilt stocks would presumably provide anglers with the ability to increase catch, 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 fishery 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.

7.6 Initial Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) requires the Federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either: (A) certify that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities; or (B) prepare an Initial Regulatory Flexibility Analysis.

Description of the Reasons Why Action by the Agency is being Considered

A complete description of the purpose and need and objectives of this proposed rule is found under section's 1.0 and 3.0 of this SIR. A statement of the problem for resolution is also presented in sections 1.0 and 3.0. As discussed in section 7.3, in addition to the Council's recommended haddock measures, we are proposing an additional and more conservative set of measures. The proposed rule will solicit comment on both sets of proposed measures to inform a final decision. However, the estimated economic impacts from both sets of measures are nearly identical.

The Objectives and Legal Basis of the Proposed Rule

A complete description of the objectives of this proposed rule is found under sections 1.0 and 3.0 of this SIR. This action is taken under the authority of the Magnuson-Stevens Act and regulations at 50 CFR 648.89(f)(3).

Estimate of the Number of Small Entities

The Small Business Administration (SBA) defines a small commercial finfishing or shellfishing business as a firm with annual receipts (gross revenue) of up to \$11.0 million. A small for-hire recreational fishing business is defined as a firm with receipts of up to \$7.5 million. Having different size standards for different types of fishing activities creates difficulties in categorizing businesses that participate in

multiple fishing related activities. For purposes of this assessment business entities have been classified into the SBA-defined categories based on which activity produced the highest percentage of average annual gross revenues from 2013-2015, the most recent three-year period for which data are available. This classification is now possible because vessel ownership data has been added to Northeast permit database. The ownership data identifies all individuals who own fishing vessels. Using this information, vessels can be grouped together according to common owners. The resulting groupings were treated as a fishing business for purposes of this analysis. Revenues summed across all vessels in a group and the activities that generate those revenues form the basis for determining whether the entity is a large or small business.

The proposed regulations include closed seasons in addition to possession limits and size limits. For purposes of this analysis, it is assumed that for-hire businesses are directly affected by all three types of recreational fishing restrictions. According to the FMP, it is unlawful for the owner or operator of a charter or party boat issued a valid multispecies permit, when the boat is carrying passengers for hire, to:

- (i) Possess cod or haddock in excess of the possession limits.
- (ii) Fish with gear in violation of the regulations.
- (iii) Fail to comply with the applicable restrictions if transiting the GOM Regulated Mesh Area with cod or haddock on board that was caught outside the GOM Regulated Mesh Area.

As the for-hire owner and operator can be prosecuted under the law for violations of the proposed regulations, for-hire business entities are considered directly affected in this analysis. Anglers are not considered “entities” under the RFA and thus economic impacts on anglers are not discussed here. Economic impacts on anglers are discussed above in section 7.4.

For-hire fishing businesses are required to obtain a Federal for-hire multispecies fishing permit for their passengers to catch GOM cod or haddock. Thus, the affected business entities of concern are businesses that hold Federal multispecies for-hire fishing permits (category I Charter/Party permits). While all business entities that hold for-hire permits could be affected by changes in recreational fishing restrictions, not all business that hold for-hire permits actively participate in a given year. Those who actively participate, i.e., land fish, would be the group of business entities that are impacted by the regulations. Latent fishing power (in the form of unfished permits) has the potential to alter the impacts on a fishery, but it’s not possible to predict how many of these latent business entities will or will not participate in this fishery in fishing year 2017. The Northeast Federal landings database (i.e., vessel trip report data) indicates that a total of 645 party/charter vessels held a multispecies for-hire fishing permit in 2015 (the most recent full year of available data). Of the 645 for-hire permitted vessels, however, only 208 actively participated in the for-hire Atlantic cod and haddock fishery in fishing year 2015 (i.e., reported catch of cod or haddock).

Using vessel ownership information developed from Northeast Federal permit data and Northeast vessel trip report data, it was determined that the 208 actively participating for-hire vessels are owned by 191 unique fishing business entities. The vast majority of the 208 fishing businesses were solely engaged in for-hire fishing, but some also earned revenue from shellfish and/or finfish fishing. The highest percentage of annual gross revenues for all but 18 of the fishing businesses was from for-hire fishing. In other words, the revenue from for-hire fishing was greater than the revenue from shellfishing and the revenue from finfish fishing for all but 18 of the business entities.

According to the SBA size standards, small for-hire businesses are defined as firms with annual receipts of up to \$7.5 million, and small commercial finfishing or shellfishing business as firms with annual receipts (gross revenue) of up to \$11.0 million. Average annual gross revenue estimates calculated from the most recent three years (2013-2015) indicate that none of the 191 for-hire business entities had annual receipts of more than \$5.2 million from all of their fishing activities (for-hire, shellfish, and finfish). Therefore, all of the affected for-hire business entities are considered “small” by the SBA size standards and thus this action will not disproportionately affect small versus large for-hire business entities.

Economic Impacts on Regulated Small Entities

Estimates of potential changes in overall business entity revenues are provided in this assessment. Estimates of impacts upon profitability are not examined because of data limitations. Potential changes in gross revenues during fishing year 2017 are shown relative to the status quo option, since the measures proposed under the status quo option were in place during fishing year 2016 and provide the best indication of the immediate short-term effect of changes to the regulations during fishing year 2017 on business entities that engage in for-hire fishing for GOM cod or haddock.

Impacts were examined by first calculating the total estimated gross revenue that will be received by businesses engaged in GOM cod and haddock for-hire fishing in fishing year 2017, under each of the sets of proposed measures. This was calculated by multiplying the estimated average access fee paid by for-hire anglers in fishing year 2017 (\$121)¹ by the predicted number of for-hire angler trips that will target or catch GOM cod or haddock in fishing year 2017 under each set of proposed measures (see Table 12). Total estimated gross revenue under each option was then assigned to the 191 business entities identified as being actively engaged in for-hire fishing for GOM cod and haddock. Instead of assigning the revenue equally across all of the 191 business entities, the assignment was made based on each business entity’s share of total for-hire gross revenue contained in the ownership database. This approach attempts to account for disproportional revenue effects across business entities. The estimated revenue received by each business entity from anglers that target or catch GOM cod or haddock in fishing year 2017 could then be compared across options.

Revenue estimates under the Council Recommended option and the Additional NMFS Option were subtracted from the estimated revenue received under the status quo to determine projected for-hire revenue declines for each business entity in fishing year 2017. However, since some of the affected business entities also receive revenue from commercial shellfishing and finfishing activities, actual revenue losses for the business entity as a whole was calculated from total fishing activity, not just for-hire fishing activity. Therefore, the estimated for-hire revenue losses were then subtracted from each business entities total average annual gross revenue (i.e., gross revenues from all fishing activities averaged over 2013-2015 contained in the ownership data to determine the potential change in total gross revenue for each fishing business. Table 13 shows the business entity revenue impacts under the Council Recommended and the Additional NMFS Option when compared to the estimated revenue received by for-hire businesses under the status quo measures in fishing year 2017.

¹ Average access fees paid by for-hire anglers in the Northeast Region were obtained from Lovell, Steinback, and Hilger (2013). The 2011 average access fee (\$113) was adjusted to its 2017 equivalent (\$121) using the Bureau of Labor’s Consumer Price Index.

Table 3. Estimated Percent Decline in Business Entity Gross Revenue in Fishing Year 2017 Relative to Keeping Status Quo Measures in Place.

2017 Measures	Number of Affected Business Entities	Percent Decline in Business Entity Revenue		
		<1 percent	1 - 3 percent	>3 percent
Council Recommended	191	18	173	0
Additional NMFS Option	191	18	173	0

The proposed changes to the status quo measures are estimated to affect business entity revenue to some extent in fishing year 2017. Both of the proposed options, relative to the status quo measures, are estimated to result in a loss of less than 1 percent of total gross revenue for 18 businesses and a loss of 1 to 3 percent of total gross revenue for the remaining 173 affected business entities. No business entities are estimated to lose more than 3 percent of their total business entity revenue in fishing year 2017 from implementation of either of the proposed options in comparison to the status quo.

The ownership data used for this assessment indicate that 71 out of the 191 affected fishing businesses receive a portion of their total business revenue from commercial shellfishing and/or finfishing, so there's a chance that these 71 businesses can offset some of their losses by increasing their commercial fishing activities in fishing year 2017. However, all but 18 of these 71 businesses received the majority of their gross revenue from their for-hire activities so it's unclear, given the reliance on for-hire revenues, to what extent these businesses will be able to offset their losses with additional commercial fishing revenues. In addition, the 120 fishing businesses that were solely engaged in for-hire activities will likely have no ability to offset for-hire fishing revenue losses with commercial fishing activity.

Although it's certainly possible that angler effort aboard for-hire boats will not decline to the extent projected in fishing year 2017, and hence estimated gross revenue losses may be lower than shown here, the model results indicate that total revenue may decline by up to 3 percent for each fishing business entity that engages in for-hire fishing for GOM cod and haddock under the proposed options.

Description of the Projected Reporting, Record-Keeping, and Other Compliance Requirements

There are no proposed reporting, recordkeeping, or other compliance requirements.

Federal Rules Which May Duplicate, Overlap, or Conflict with this Proposed Rule

The proposed action is authorized by the regulations implementing the NE Multispecies FMP. It does not duplicate, overlap, or conflict with other Federal rules.

Description of Significant Alternatives

A total of seven combinations of recreational measures were presented to the Recreational Advisory Panel, the Groundfish Oversight Committee, and the Council. This included the status quo and an option (presented to the Panel, Committee, and Council as Option 1) that prohibited cod possession while retaining the current haddock measures that would not have restrained catch to the quotas, and thus, would not have accomplished the objective. The proposed options that would accomplish the

objectives were the Council recommended option (presented to the Panel, Committee, and Council as Option 2) and the additional NMFS option (presented to the Panel, Committee, and Council as Option 3), which are discussed in detail in the preamble. The remaining three options (Options 4, 5, and 6 in table 15) that would accomplish the objective were discussed by all three groups. These remaining options were rejected either because implementation was viewed as confusing to the public (e.g., implementing a May closure shortly after the start of the fishing year on May 1) or in deference to having a larger public process to consider the concept (i.e., separate measures for the private anglers and the for-hire fleet).

Table 45. Projected Fishing Year 2017 Recreational Cod and Haddock Catch under Alternative Measures Not Proposed.

2017 Measures	Haddock			Cod			Predicted Haddock Catch (mt)	Probability Haddock Catch Below sub-ACL (percent)	Predicted Cod Catch (mt)	Probability Cod Catch Below sub-ACL (percent)
	Haddock Possession Limit	Minimum Fish Size	Closed Season	Cod Possession Limit	Minimum Fish Size	Closed Season				
Option 4	15	17	3/1 - 4/14 2 weeks in May	N/A	N/A	5/1 - 4/30	1,118	73	153	61
Option 5	10	17	3/1 - 4/14 2 weeks in May	N/A	N/A	5/1 - 4/30	1,149	68	157	51
Option 6 Private	12	17	3/1 - 4/14 9/17 - 10/31	N/A	N/A	5/1 - 4/30	1,159	51	153	55
Option 6 For Hire	10	17	3/1 - 4/14	N/A	N/A	5/1 - 4/30				

8.0 Summary of Public Involvement

The proposed measures were presented and discussed at three public meetings in January 2017. All of the meetings were publicly announced in advance in the [Federal Register](#) and on the Council's website. On January 18, 2017, the RAP met. Center staff presented the proposed measures, among other options, along with the results of the bioeconomic model. The RAP discussed the options at length, including raising scientific and policy questions that were answered by NMFS staff members. On January 19, 2017, a summary of the information and the RAP's recommendation were presented to and discussed by the Groundfish Oversight Committee. On January 25, 2017, a summary of the information, the RAP's recommendation, and the Committee's recommendation were presented to and discussed by the Council. The Council meeting also included a formal opportunity for public comment. Additionally, the proposed measures and supporting analyses will be published in the [Federal Register](#) with a public comment period prior to implementing final regulations for 2017. The final regulations will also be published in the [Federal Register](#) along with a written response to all comments received.

9.0 Conclusion

The Framework 55 EA concluded that the preferred measures, including the recreational sub-ACLs for GOM cod and haddock, would not significantly impact the quality of the human environment. Biological impacts to GOM cod and haddock were determined to be positive. Protected species interactions in the recreational component of the multispecies fishery are expected to be rare to non-existent. Recreational hook and line fishing gear has poorly understood interactions with benthic habitats, but is believed to have significantly less impact than commercial longline gear which is known to have low to moderate impacts on habitat. Economic impacts on the recreational fishery were considered positive as the sub-ACLs could allow for increased recreational fishing effort and non-economic social impacts were considered neutral. The cumulative effects were expected to be a long-term positive impact.

The supplemental EA analyzed the impact of revised measures for the GOM cod and haddock recreational fishery on the physical, biological, habitat, and socio-economic ecosystem components. The alternatives included in the supplemental EA spanned a range that encompasses the measures proposed for fishing year 2017. The supplemental EA concluded that continuing the prohibition of possession of GOM cod and the reduced fishing season for GOM haddock implemented in 2015 would result in a number of trips far below the normal trip count, and suggested that short term impacts would be low negative for the fleet, causing economic losses for charter/party vessels. However, the conclusion for the less restrictive measures implemented in 2016 was that the impacts would be positive. Unlike 2015, the measures proposed for 2017 have a much more liberal haddock bag limit and dramatically shorter closed seasons for haddock. As shown in Table 4, the bioeconomic model predicts the proposed measures would result in only a slight reduction in trips when compared to 2016, and significantly more trips than in 2015. While the predicted 9-percent reduction in trips from 2016 would be a negative short-term impact, it is less than the impact of the 2015 measures and within the scope of the impacts previously analyzed for the range of options considered for 2016.

We conclude that there are no substantial changes in the proposed action that are relevant to environmental concerns, there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts, and there are no new

circumstances or information that are “significant,” according to CEQ’s “significance” criteria at 40 C.F.R. § 1508.27, which could require a new EA.

10.0 Preparers and Persons Consulted

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