



MAY 25 2012

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

TITLE: Supplemental Environmental Assessment for the U.S. Northwest Atlantic Trawl Fishery in the Northwest Atlantic Fisheries Organization's Regulatory Area

LOCATION: Atlantic International Waters

SUMMARY: This action would issue a High Seas Fisheries Conservation Act permit for up to 10 U.S. vessels to participate in the Northeast Atlantic trawl fishery and catch species managed by the Northwest Atlantic Fisheries Organization (NAFO). An environmental assessment (EA) was originally developed in 2009 to analyze the impacts associated with U.S. fishing activity within the NAFO Regulatory Area. An update to that original EA is necessary to provide additional information on impacts to other species that may be caught by U.S. vessels, and to update the listing status of sea turtles and Atlantic sturgeon under the Endangered Species Act.

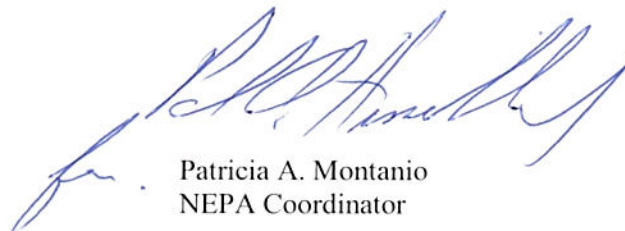
RESPONSIBLE

OFFICIAL: Daniel S. Morris  
Acting Regional Administrator, Northeast Region  
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)  
55 Great Republic Drive  
Gloucester, MA 01930  
(978) 281-9200

The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact (FONSI), including the EA, is enclosed for your information.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the Responsible Official named above.

Sincerely,



Patricia A. Montanio  
NEPA Coordinator

Enclosure



Supplemental Environmental Assessment for the  
U.S. Northwest Atlantic Trawl Fishery in the  
Northwest Atlantic Fisheries Organization's (NAFO)  
Regulatory Area

Prepared by the Northeast Regional Office  
National Marine Fisheries Service

May 2012



## Table of Contents

1.0#	Executive Summary .....	1#
2.0#	Purpose and Need for Action .....	2#
2.1#	Background.....	2#
2.2#	Purpose and Need .....	3#
3.0#	Summary of Alternatives .....	3#
3.1#	No Action (no HSFCA permits issued) .....	3#
3.2#	Issue HSFCA Permits .....	4#
4.0#	Affected Environment.....	4#
4.1#	Target and Non-Target Species .....	5#
4.1.1#	Yellowtail flounder ( <i>Limanda ferruginia</i> ) in Divisions 3LNO .....	5#
4.1.2#	American plaice ( <i>Hippoglossoides platessoides</i> ) in Divisions 3LNO.....	6#
4.1.3#	Witch Flounder ( <i>Glyptocephalus cynoglossus</i> ) in Divisions 3N and 3O .....	8#
4.1.4#	Cod ( <i>Gadus morhua</i> ) .....	8#
4.1.4.1#	Divisions 3N and 3O.....	8#
4.1.4.2#	Division 3M.....	9#
4.1.5#	White Hake ( <i>Urophycis tenuis</i> ) in Divisions 3N and 3O .....	10#
4.1.6#	Redfish ( <i>Sebastes</i> spp.).....	11#
4.1.6.1#	Division 3M .....	11#
4.1.6.2#	Divisions 3LN and 3O .....	11#
4.1.7#	Northern Shortfin Squid ( <i>Illex illecebrosus</i> ) in Subareas 3+4.....	12#
4.1.8#	Northern Shrimp ( <i>Pandalid and Penaeus Sp.</i> ) in Divisions 3LNO.....	12#
4.1.9#	Thorny Skate ( <i>Amblyraja radiata</i> ) in Divisions 3L, 3N, 3O and Subdivision 3Ps .....	13#
4.2#	Marine Mammals and Protected Species.....	13#
4.3#	Physical Environment - Habitat Information .....	20#
4.4#	Human Environment.....	22#
4.4.1#	Vessels and Ports.....	22#
4.4.2#	Landings .....	24#
5.0#	Environmental Consequences of the Proposed Action and Alternatives .....	24#
5.1#	Target Species.....	24#
5.2#	Impact on Non-target Species.....	25#
5.3#	Impact on Protected Species .....	26#
5.4#	Habitat Impacts.....	27#
5.5#	Economic Impacts .....	27#
5.6#	Social Impacts.....	29#
5.7#	Cumulative Effects .....	30#
5.7.1#	Introduction to Cumulative Effects .....	30#
5.7.2#	Past, present, and reasonably foreseeable future actions .....	32#
5.7.2.1#	Non-Fishing Actions and Activities.....	33#
5.7.2.2	NAFO Actions .....	33#
5.7.2.3#	U.S. Fishery Management Actions .....	34#
5.7.3#	Cumulative Impacts on Target Species .....	37#
5.7.4#	Cumulative Impacts on Protected Species.....	38#
5.7.5#	Cumulative impacts on habitat .....	39#
5.7.6#	Cumulative impacts on communities .....	39#
5.7.7#	Summary of cumulative effects.....	40#
6.0#	Finding of No Significant Impact (FONSI Statement).....	40#
7.0#	References.....	46#
8.0#	List of Preparers and Persons Consulted.....	53#

## List of Tables

Table 1. 3LNO Yellowtail Catch in Relation to TACs (2005 - 2010).....	5#
Table 2. Catch Projections for 3LNO Yellowtail Flounder for 2012 and 2013.....	6#
Table 3. 3LNO American Plaice Catch in Relation to TACs (2005 - 2010).....	6#
Table 4. 3NO Witch Flounder Catch in Relation to TACs (2005 - 2010).....	8#
Table 5. 3NO Cod Catch in Relation to TACs (2005 - 2010).....	9#
Table 6. 3LNO Northern Shrimp TACs and Catch Since 2007.....	12#
Table 7. 3LNO Thorny Skate Catch in Relation to TACs (2005 - 2010).....	13#
Table 8. Species Protected Under the Endangered Species Act and Marine Mammal Protection Act that May Occur in the NAFO Convention Area.....	14#
Table 9. U.S. and Canadian Ex-vessel Prices for Groundfish Species During 2010.....	28#
Table 10. Summary Effects of Past, Present, and Reasonably Foreseeable Future Actions on the VECs Identified for the Northwest Atlantic Trawl Fishery.....	36#
Table 11. Added Effects on the Condition of the VECs and the Sum Effect of the Past, Present, and Reasonably Foreseeable Future Actions.....	37#

## List of Figures

Figure 1. NAFO Convention Area.....	4#
Figure 2. Estimated F for 3LNO Yellowtail Flounder.....	5#
Figure 3. Estimated Biomass for 3LNO Yellowtail Flounder .....	6#
Figure 4. Estimated Average F for 3LNO American Plaice .....	7#
Figure 5. Estimated Biomass for 3LNO American Plaice .....	7#
Figure 6. Estimated SSB for 3M Cod .....	10#
Figure 7. Estimated Average F for 3M Cod .....	10#
Figure 8. Estimated SSB and F for 3M Redfish .....	11#
Figure 9. Cumulative Yellowtail Flounder Fishing Effort on the Grand Banks During 2000 - 2008 (solid black arc is the Canadian EEZ, while dashed lines are the boundaries of NAFO Divisions 3LNO) (from Kukla 2009).....	20#
Figure 10. Coral Area Closed to Bottom Fishing (Article 16.4 of the NCEM) .....	21#
Figure 11. Locations of Sponge and Coral Concentrations Closed to Bottom Fishing (Article 16.5 of the NCEM) .....	21#
Figure 12. NAFO Regulatory Area Footprint.....	22#
Figure 13. Number of Vessels and Days Present in the NAFO Regulatory Area by Fishery Type.....	23#

## List of Acronyms

ACL = Annual Catch Limit  
AM = Accountability Measure  
B = Biomass  
BRT = Biological Review Team  
CEQ = Council on Environmental Quality  
DAS = Days-at-Sea  
DFO = Department of Fisheries and Oceans Canada  
DPS = Distinct Population Segment  
EEZ = Exclusive Economic Zone  
EFH = Essential Fish Habitat  
ESA = Endangered Species Act  
EU = European Union  
F = Fishing Mortality  
FAO = Food and Agriculture Organization of the United Nations  
FMP = Fishery Management Plan  
FPSO vessel = Floating Production, Storage, and Offloading vessel  
GBP = Gravity Base Platform  
HSFCA = High Seas Fishing Compliance Act  
MMPA = Marine Mammal Protection Act  
NAFO = Northwest Atlantic Fisheries Organization  
NERO = Northeast Regional Office  
NCEM = NAFO Conservation and Enforcement Measures  
NMFS = National Marine Fisheries Service  
NOAA = National Oceanic and Atmospheric Administration  
NRA = NAFO Regulatory Area  
RFMO = Regional Fishery Management Organization  
RFMOAs = Regional Fishery Management Organizations and Arrangements  
SSB = Spawning Stock Biomass  
TAC = Total Allowable Catch  
UNGA = United Nations General Assembly  
USFWS = U.S. Fish and Wildlife Service  
VEC = Valued Environmental Component  
VME = Vulnerable Marine Ecosystem  
VMS = Vessel Monitoring System  
WGFSM = Ad Hoc Working Group of Fisheries Scientists and Managers

## 1.0 Executive Summary

This action would analyze the impacts of up to 10 U.S. vessels to participate in the Northwest Atlantic trawl fishery governed by the Northwest Atlantic Fisheries Organization (NAFO) through the issuance of permits under the High Seas Fishing Compliance Act (HSFCA). These vessels would be primarily targeting yellowtail flounder in NAFO Divisions 3LNO under a quota of up to 1,500 mt that may be transferred to the U.S. by Canada on a yearly basis through 2018. Other species managed by NAFO would also be available to U.S. vessels, including redfish, white hake, shrimp, American plaice, and *Illex* squid. The purpose of this environmental assessment (EA) is to update the previous EA (November 2009) that analyzed the impacts on the human environment of issuing HSFCA permits to U.S. vessels to participate in the Northwest Atlantic trawl fishery, including any impacts to Endangered Species Act (ESA)-listed species and marine mammals.

The proposed action is not expected to result in any significant impacts to target or non-target species, including yellowtail flounder, redfish, American plaice, cod, witch flounder, *Illex* squid, shrimp, and thorny skate. U.S. vessels will be subject to quotas allocated or available to the U.S. for each fishing year, as specified by NAFO at its annual meeting. Once any of the available quotas are projected to be harvested based on daily catch reports required by NAFO, the National Marine Fisheries Service (NMFS) will close the applicable fishery to U.S. vessels. Additionally, all U.S. vessels will be required to abide by the restrictive bycatch provisions established by NAFO, including for stocks currently under a moratorium or when the “others” quotas for specific species are projected to be harvested.

In terms of impacts to habitat, this action may result in a slight increase in overall fishing effort in the NAFO Regulatory Area (NRA), but fishing activities will occur in areas already subject to bottom trawl fishing (the NAFO “Footprint Area”). Furthermore, U.S. vessels will be required to abide by existing areas closed to protect sensitive habitats (seamount closures and coral protection zone) as well as provisions to protect vulnerable marine ecosystems (VME). Therefore, this action is not expected to result in any significant impacts to habitat.

According to information provided by NAFO, there are no known interactions between bottom trawl gear and sea turtles or marine mammals listed under the Endangered Species Act (ESA) in the NRA other than one incident between a blue whale and a 167 ft (51 m) factory trawl vessel in 2006. There is documentation of unclassified sturgeon caught within the NAFO Convention Area. However, only 7 sturgeon are identified as being caught with an particular area of the NAFO Convention Area, and those were caught well within the Canadian Exclusive Economic Zone (EEZ). Therefore, it is not possible to evaluate how many sturgeon were caught within the NRA based on available data. Expected fishing operations under the proposed action on the Grand Banks are not conducted in areas where Atlantic sturgeon, particularly any of the distinct population segments (DPSs) recently listed under the ESA, are likely to occur based on the depth of the fishing locations (approaching 200m) and the distance from any rivers. Therefore, although there is documentation of catch of ESA-listed species and this action may result in a slight increase in fishing effort in the NRA, it is not expected to increase the likelihood of

interaction between ESA-listed species or marine mammals and trawl gear in the NRA, which is negligible.

Finally, this action is expected to have a positive impact on fishing communities since it would provide additional fishing opportunities to vessels, particularly those that participate in the Northeast multispecies fishery. In recent years, this fishery has been subject to substantial regulatory changes that have reduced the ability of U.S. vessels to target species in the Northeast multispecies complex, such as yellowtail flounder, redfish, American plaice, and white hake. Therefore, any additional fishing opportunities that can be provided to these vessels are considered a positive benefit. However, the degree of this positive impact is difficult to estimate due to the large difference between the price of yellowtail flounder and American plaice in the U.S. as compared to Canada, as well as the anticipated high operating costs associated with participating in the Northwest Atlantic trawl fishery in the NRA.

## 2.0 Purpose and Need for Action

### 2.1 Background

The Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, signed in Ottawa in October 1978, established NAFO. The prime objective of NAFO has been to contribute to the optimum utilization, rational management, and conservation of fishery resources in the NAFO Convention Area through consultation and cooperation among Contracting Parties. The NAFO Convention Area includes the NRA, with the NRA defined as the area within the NAFO Convention Area that lies outside the 200-mile maritime boundaries of Canada and Denmark with respect to Greenland (see Figure 1). The U.S. became a member of NAFO following its accession to the Convention on November 29, 1995.

Prior to the U.S. becoming a member of NAFO, the organization established catch quotas for the species managed under the Convention, based upon prior catch history. Any country that became a party to NAFO following the establishment of these quotas was given a minimal quota, regardless of whether they had prior fishing history in the NRA. As a result, the U.S. received small quotas for some species (*Illex* squid and shrimp), and shared quotas for other species (redfish and yellowtail flounder) after it joined the organization. However, these quota allocations have been too small for U.S. vessels to conduct an economically viable fishery in the NRA.

The U.S. has engaged in discussions with Canada over the last several years in an attempt to obtain a portion of its NAFO Divisions 3LNO (Grand Bank) yellowtail flounder quota, the only species for which the U.S. has a documented fishing history in the NRA. At the 30<sup>th</sup> Annual NAFO meeting held in Vigo, Spain (September 22- 26, 2008), the U.S. and Canada signed an arrangement concerning the transfer of up to 1,500 mt of 3LNO yellowtail flounder quota from Canada to the U.S. on an annual basis through December 31, 2018. This agreement includes a provision that the yellowtail flounder quota be adjusted proportionally if NAFO adjusts the current 17,000 mt quota, but should be renegotiated if that quota drops below 15,500 mt. No adjustments were made to the 17,000 mt quota for 2012 at the 32<sup>nd</sup> Annual NAFO meeting held in Halifax, Nova Scotia, Canada.



Each year, the U.S. publishes a notice in the *Federal Register* soliciting interest in fishing endeavors to harvest available U.S. NAFO quota. Each year, several entities typically express interest in fishing the U.S. NAFO quota, though no vessels have actually conducted fishing operations to date. For 2012, three entities responded to the *Federal Register* notice (76 FR 77806), with two entities requesting to harvest available U.S. yellowtail flounder quota, and one other entity requesting to catch the available U.S. 3L shrimp allocation. One applicant was authorized to contract with an Estonian vessel to catch the U.S. allocation of 3L shrimp, while another entity was selected to harvest the U.S. NAFO quota in 2012, including 1,000 mt of 3LNO yellowtail flounder quota transferred from Canada.

An EA that analyzed the U.S. participation in the Northwest Atlantic trawl fishery regulated under NAFO was completed on (November 20, 2009). That analysis focused almost exclusively on the impacts of targeted fishing on yellowtail flounder and the associated bycatch of American plaice, and concluded that no significant impact was likely from the U.S. participation in the Northwest Atlantic trawl fishery.

A supplement to the original EA is necessary to analyze the impacts of additional species of fish that are caught incidental to yellowtail flounder, and in order to update the analysis to account for changes in the state of nature. These changes include the status of several species listed under the Endangered Species Act, primarily the listing of several distinct population segments (DPSs) of loggerhead sea turtles and Atlantic sturgeon as endangered or threatened on September 22, 2011, and February 6, 2012, respectively.

## 2.2 Purpose and Need

This action is needed to issue HSFCA permits to authorize U.S. fishing vessels to participate in the Northwest Atlantic trawl fishery within the NRA for yellowtail flounder and other species. These permits would be updated yearly to reflect quota available to U.S. vessels, and which vessels were selected to fish available U.S. quotas within the NRA. As stated above, due to changes in the state of nature, the purpose of this action is to supplement the analysis done in the 2009 EA that analyzed the environmental impacts of U.S. participation in the Northwest Atlantic trawl fishery governed under NAFO, including the potential impacts on species listed as threatened or endangered under ESA, so that HSFCA permits may be issued to U.S. vessels to participate in this fishery.

## 3.0 Summary of Alternatives

### 3.1 No Action (no HSFCA permits issued)

Under this alternative, U.S. vessels would not be issued HSFCA permits to participate in the Northwest Atlantic trawl fishery governed under NAFO. Permits issued under the HSFCA are required for any U.S. fishing vessel that intends to fish on the high seas, waters outside of the territorial seas or outside of the exclusive economic zone of any nation. In order to fish for available U.S. quota within the NRA, U.S. vessels must obtain a HSFCA permit and comply with all the conditions of that permit, including compliance with the all management measures established by NAFO. Therefore, the No Action alternative would not issue any HSFCA permits to U.S. vessels, thereby prohibiting them from fishing within the NRA.

### 3.2 Issue HSFCA Permits

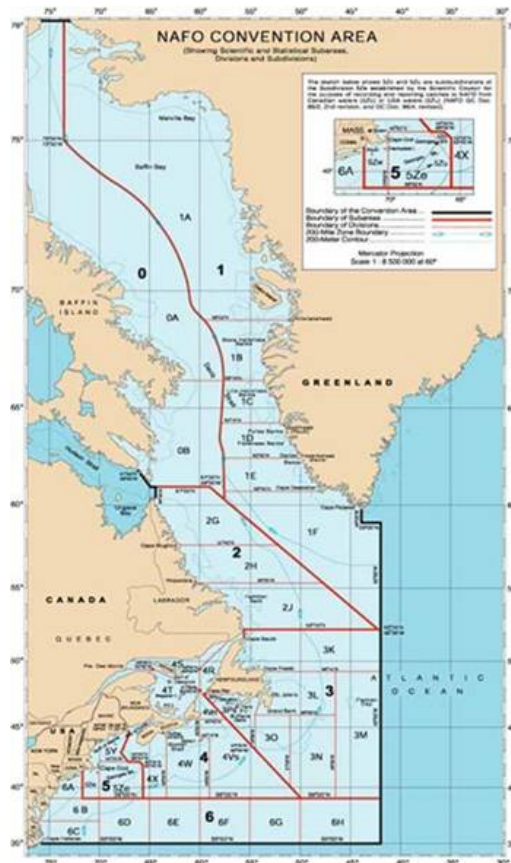
Under this alternative, U.S. vessels would be issued HSFCA permits, and would be authorized to participate in the Northwest Atlantic trawl fishery governed under NAFO (Figure 1).

Specifically, U.S. vessels issued a HSFCA permit would be authorized to fish for species allocated to the U.S. under NAFO within the NRA, including 3LNO yellowtail flounder, 3M redfish, Sub-Areas 3 and 4 *Illex* squid, and 3L shrimp. U.S. vessels would also be able to land species allocated to all Contracting Parties under the “others” quota for each species, including 3LN and 3O redfish, 3M cod, 3NO white hake, and 3LNO skates.

### 4.0 Affected Environment

The status of all stocks for which the U.S. has a quota allocation is provided below. The stock that will be the primary focus of the U.S. fishery will be 3LNO yellowtail flounder, although other stocks such as 3L shrimp and Sub-Areas 3 and 4 *Illex* squid may also be targeted. Stock status is also provided for the anticipated bycatch species of American plaice, witch flounder, cod, and thorny skate. Scientific advice for other stocks can be obtained from the Scientific Council’s annual reports, which are available to the public on NAFO’s website at <http://www.nafo.int/publications/frames/science.html>. Please note that all stocks are not assessed annually.

**Figure 1. NAFO Convention Area**



## 4.1 Target and Non-Target Species

### 4.1.1 Yellowtail flounder (*Limanda ferruginia*) in Divisions 3LNO

There was a moratorium on directed fishing from 1994 to 1997, and small catches were taken as bycatch in other fisheries. The fishery was re-opened in 1998 and catches increased from 4,400 mt in 1998 to 13,900 mt in 2005. Total allowable catch levels (TACs) were exceeded each year from 1985 to 1993, and 1998-2001, but not since 2001. In 2006 and 2007, catches were much lower than the TACs, but this was due to an industry related issue (union strike), not a resource availability issue.

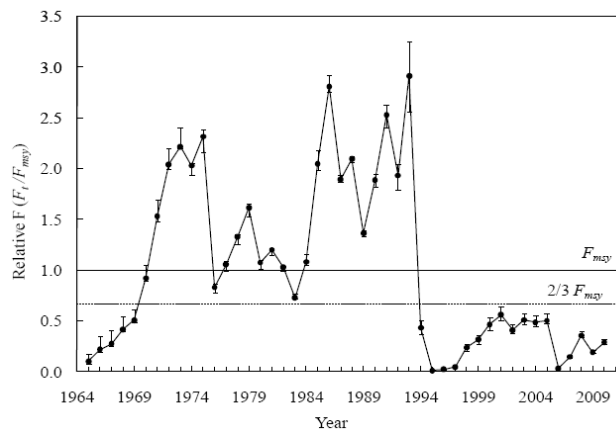
**Table 1. 3LNO Yellowtail Catch in Relation to TACs (2005 - 2010)**

Year	TAC (mt)	Catch (mt)
2005	15,000	13,900
2006	15,000	900
2007	15,500	4,400
2008	17,000	11,400
2009	17,000	6,200
2010	17,000	9,400

From June 2009 and 2011 NAFO Scientific Council Reports (NAFO 2009 and 2011, respectively)

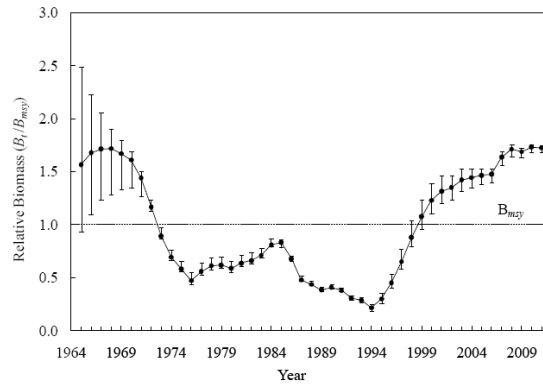
The fishing mortality rate (F) necessary to achieve maximum sustainable yield ( $F_{MSY}$ ) is estimated to be 0.25. The F on 3LNO yellowtail flounder has been below  $F_{MSY}$  since 1994. In 2011, F was less than 1/3 of  $F_{MSY}$ . Even if 2011 catch is assumed to be 17,000 mt, F in 2011 will still likely be below 2/3 of  $F_{MSY}$  (NAFO 2011). Catch would have to exceed 28,000 mt to exceed  $F_{MSY}$  in 2012 based on projections outlined in the 2001 SC report (see Table 2).

**Figure 2. Estimated F for 3LNO Yellowtail Flounder**



Stock size has steadily increased since 1994, and has been estimated to be above the level of  $B_{MSY}$  since 1999. Currently SSB is estimated to be 1.7 times  $B_{MSY}$  in 2011. Based on a comparison of small fish (<22 cm) in research surveys, recent recruitment appears to be about average (NAFO 2011).

**Figure 3. Estimated Biomass for 3LNO Yellowtail Flounder**



In its June 2011 report (NAFO 2011), the NAFO Scientific Council noted that the yellowtail flounder fishery takes cod and American plaice as bycatch. Thus, in establishing the TAC for yellowtail flounder, the Scientific Council noted that the impacts on Division 3NO cod and Division 3LNO American plaice of any increase in yellowtail flounder TAC should be considered. Further, because of the uncertainty in the estimation of  $F_{MSY}$ , the Scientific Council recommends that catch levels should not be set above 85 percent  $F_{MSY}$ . Catch projections at various levels of  $F$  are provided in Table 2.

**Table 2. Catch Projections for 3LNO Yellowtail Flounder for 2012 and 2013**

Table 3	Projected $F$	Catch 2012 (mt)	Catch 2013 (mt)
	$F_{2011}$ (catch=17,000mt)	8,900	9,000
	$2/3 F_{msy}$	19,900	18,900
	$75\% F_{msy}$	22,200	20,800
	$85\% F_{msy}$	25,000	22,900
	$F_{msy}$	28,800	25,700

From June 2011 NAFO Scientific Council Report (NAFO 2011)

4.1.2 American plaice (*Hippoglossoides platessoides*) in Divisions 3LNO

This fishery has been under moratorium since 1995. Total catch in 2010 was 2,898 mt, mainly taken in the NRA as by-catch in the Canadian yellowtail flounder fishery (Table 3). Since 1995, catch increased, but has decreased since 2003.

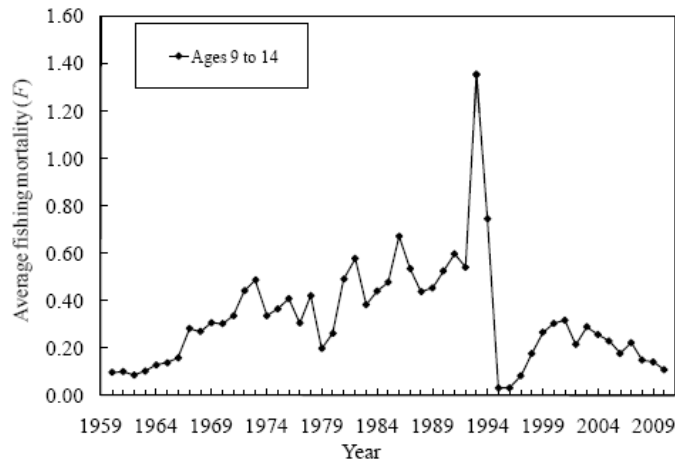
**Table 4. 3LNO American Plaice Catch in Relation to TACs (2005 - 2010)**

Year	TAC (mt)	Catch (mt)
2005	Moratorium	4,100
2006	Moratorium	2,800
2007	Moratorium	3,600
2008	Moratorium	2,500
2009	Moratorium	3,000
2010	Moratorium	2,900

From June 2009 and 2011 NAFO Scientific Council Reports (NAFO 2009 and 2011, respectively)

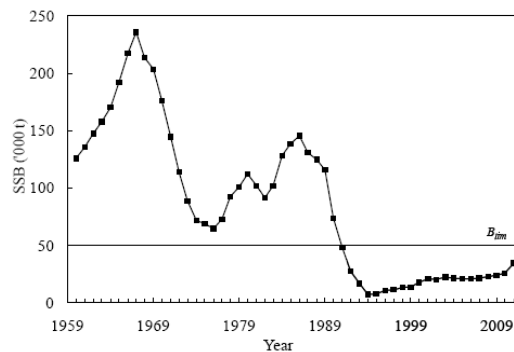
Average F on ages 9 to 14 showed an increasing trend from about 1965 to 1985. There was a large unexplained peak in F in 1993. The average F on ages 9 to 14 increased since 1995, but has declined since 2001. However, considering the stock is under moratorium, average F remains high (Figure 4) according to the June 2011 Scientific Council report (NAFO 2011).

**Figure 4. Estimated Average F for 3LNO American Plaice**



Assessment results (conducted via Virtual Population Analysis) showed that population abundance and biomass declined fairly steadily from the mid-1970s to 1995. Spawning stock biomass (SSB) has been steadily increasing since 1995, reaching 34,000 mt in 2011 (Figure 5). However, biomass is very low compared to historic levels. Previous estimates of SSB at 41,000 mt in 2009 have since been lowered. Therefore, projections that the stock would surpass  $B_{lim}$  (50,000 mt) by 2010 have yet to be realized, despite progress toward rebuilding this stock. Current fishing mortality is below the  $F_{lim}$  of 0.31 for this stock. According to the Scientific Council, bycatch should be maintained as low as possible and be restricted to unavoidable bycatch in other targeted fisheries (NAFO 2011).

**Figure 5. Estimated Biomass for 3LNO American Plaice**



#### 4.1.3 Witch Flounder (*Glyptocephalus cynoglossus*) in Divisions 3N and 3O

Like American plaice, this stock has been under a directed fishing moratorium since 1995. The stock mainly occurs in Division 3O along the deeper slopes of the Grand Bank. Catches exceeded 14,000 mt in 1971, fell to below 3,000 mt in 1980, increased to 9,100 mt in 1986, and have since declined to below 1,000 mt since 1994. During 1995-2002, bycatch (under the moratorium) ranged between 300 and 800 mt. In 2003, catches were estimated to be between 844 mt and 2,239 mt. Since then, annual catches have ranged between 600 mt (in 2004) and 200 mt (in 2007).

**Table 5. 3NO Witch Flounder Catch in Relation to TACs (2005 - 2010)**

Year	TAC (mt)	Catch (mt)
2005	Moratorium	300
2006	Moratorium	500
2007	Moratorium	200
2008	Moratorium	300
2009	Moratorium	400
2010	Moratorium	400

From June 2009 and 2011 NAFO Scientific Council Reports (NAFO 2009 and 2011, respectively)

As noted in the NAFO Scientific Council's 2011 Report, an analytical assessment is not possible for this species with current data (NAFO 2011). The Scientific Council noted that survey biomass indices declined from the mid-1980s through the late 1990s, reaching a record-low in 1998. Subsequently, the survey indices have been increasing in recent years, although they still remain relatively low and subject to considerable uncertainty. Thus, the stock remains at a low level. Recruitment has been poor since 2002.

#### 4.1.4 Cod (*Gadus morhua*)

##### 4.1.4.1 Divisions 3N and 3O

The cod stock in NAFO Divisions 3NO has been under a directed fishing moratorium since February 1994, both inside and outside the Regulatory Area. Catches increased from the implementation of the moratorium until 2003, when 4,800 mt was caught. Since 2006, catches have increased steadily to 1,100 mt in 2009, then declined to 950 mt in 2010.

The rebuilding plan for Divisions 3NO cod states that for 2008 and subsequent years, Contracting Parties shall seek to achieve a targeted reduction of 40 percent from the average annual catch during the 2004-2006 period (700 mt) or, through best efforts. Specifically, Contracting Parties are encouraged to keep incidental bycatch at the lowest possible level. The catch for 2008 did not decrease from 2007 and is above the average for the 2004-2006 time period. However, catch in 2009 and 2010 declined substantially to levels below the target specified in the rebuilding plan (420 mt) in 2010 (see Table 5).

**Table 6. 3NO Cod Catch in Relation to TACs (2005 - 2010)**

<b>Year</b>	<b>TAC (mt)</b>	<b>Catch (mt)</b>
2005	Moratorium	700
2006	Moratorium	600
2007	Moratorium	900
2008	Moratorium	900
2009	Moratorium	600
2010	Moratorium	300

From June 2011 NAFO Scientific Council Report (NAFO 2011)

Based on the Canadian spring and fall surveys, both total stock biomass and SSB remained low through 2008. Recruitment during 1991-2004 was poor. However, the 2005 and 2006 year classes are the strongest since 1989 and 1990. The survey index for this stock substantially increased in 2009, resulting in the highest in survey index since 1993 due in large part to improved recruitment from the 2005-2007 year classes, but dropped in 2010 to levels near those observed in 2008. A survey by Spain showed increase in the 2010 survey index for this stock (NAFO 2011).

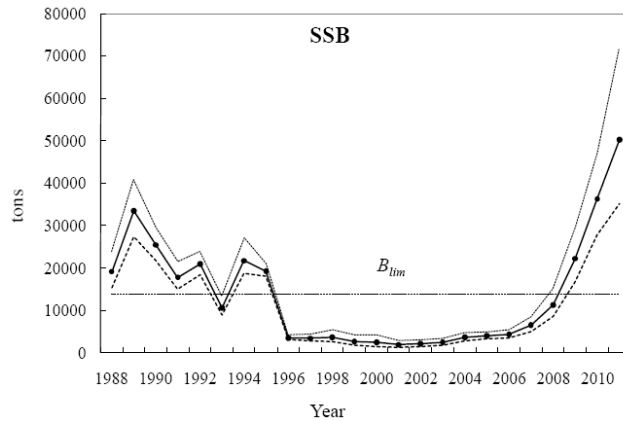
The stock remains close to its historical low, with SSB well below  $B_{lim}$  (60,000 t). In 2007, the total biomass and spawning biomass were estimated to be at extremely low levels. Despite evidence of improved recruitment, recent values of survey indices are not considered to indicate a significant change in the status of the stock relative to  $B_{lim}$ . The next full assessment of this stock is planned to be in 2013.

#### 4.1.4.2 Division 3M

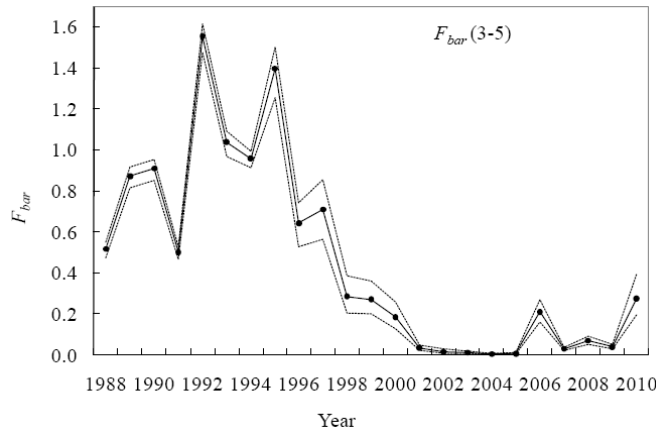
Cod catches on the Flemish cap exceeded the TAC from 1988 to 1994, but were below the TAC from 1995 to 1998. The directed fishery was closed in 1999, with bycatch estimated at 353 mt, mostly caught by non-Contracting Parties. Yearly bycatch was below 60 mt from 2000 to 2005, rising to 1161 mt by 2009. In 2010, the directed fishery was reopened, with a 5,500 mt TAC, although 2010 catches were estimated to be 9,192 mt.

SSB has been increasing since 2002, with sharp increases since 2008. This increase is largely due to reasonably abundant year classes during 2005-2009 (Figure 6). The F on 3M cod remained very low from 2001 to 2009, but increased in 2010 due to the reopening of the directed fishery (Figure 7). The 2010 F (0.28) exceed  $F_{max}$  (0.21). Recruitment remains high, but still lower than previously observed. In 2012, the TAC is set at 9,280 mt. Based on projections in the 2011 SC Report, SSB is expected to continue to increase (NAFO 2011).

**Figure 6. Estimated SSB for 3M Cod**



**Figure 7. Estimated Average F for 3M Cod**



#### 4.1.5 White Hake (*Urophycis tenuis*) in Divisions 3N and 3O

Catch of white hake in Division 3NO peaked in 1985 at 8,100 mt, but then declined from 1988 to an average catch of 464 mt by 2001. Catch increased in 2002 and 2003 to 6,718 and 4,823 mt, respectively, before falling again to an average of 767 mt from 2005 – 2009. Catch in 2010 was 226 mt, substantially below the 6,000 mt TAC.

Based on Canadian trawl surveys, the biomass index increased in 2000 due to the large 1999 year-class, but has since decreased. Currently, biomass is estimated to be comparable to the biomass index estimated during 1996 - 1999. A similar pattern is observed with estimated  $F$ . Although a stock assessment has not been completed for white hake, because of low recruitment in recent years, the Scientific Council cautions that a 6,000 mt quota is unrealistic, recommending that catch remain at current levels (NAFO 2011).



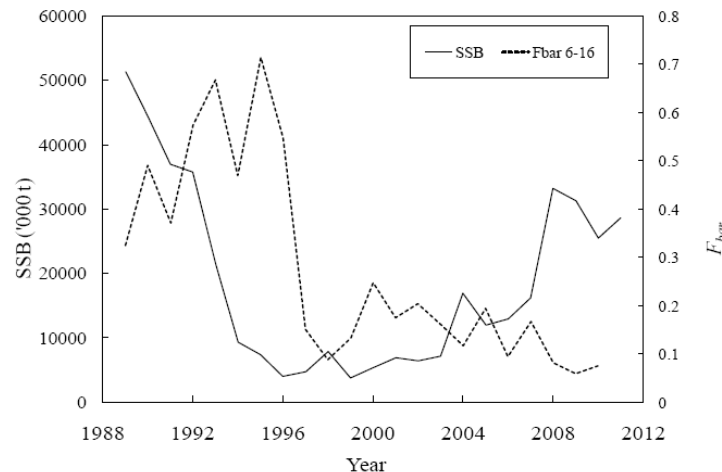
#### 4.1.6 Redfish (*Sebastes* spp.)

##### 4.1.6.1 Division 3M

Three species of redfish are fished commercially in Division 3M: Deep-water redfish (*Sebastes mentella*), golden redfish (*Sebastes marinus*) and Acadian redfish (*Sebastes fasciatus*), although deep-water and Acadian redfish have dominated recent catch in this area. Redfish catch peaked at 81,000 mt in 1990, but has since decreased to a low of 1,100 mt in 1999. Catch increased beginning in 2005 due to the emergence of a golden redfish fishery in shallower waters. In 2010, catch of deep-water and Acadian redfish reached 8,500 mt, with another 5,400 mt of golden redfish caught within Division 3M. With the exception of 2010, catch of deep-water and Acadian redfish alone has exceeded established TACs.

Estimated SSB has increased since 2000, although it slightly declined during 2009 and 2010, only to increase again in 2011. Estimated F has decreased since 2000, with levels remaining substantially lower than F estimated in the late 1980s – mid 1990s. According to the Scientific Council, F should be maintained at the current levels (0.1) to sustain the female SSB over the short term. This corresponds to a total redfish catch of 6,500 mt in 2012 and 2013 (NAFO 2011).

**Figure 8. Estimated SSB and F for 3M Redfish**



##### 4.1.6.2 Divisions 3LN and 3O

Similar to Division 3M, redfish catch in Division 3LN and 3O is dominated by deep-sea and Acadian redfish. In Divisions 3LN, catches averaged 21,000 mt from 1965-1985, increasing to an average of about 40,000 mt from 1986-1993, and then decreasing afterward to range between 450 – 3,000 mt each year. A moratorium was enacted on Division 3LN redfish from 1998 – 2009, with the directed fishery reopening in 2010, resulting in an estimated catch of 4,100 mt. In Division 3O, catches have ranged between 3,000 to 35,000 mt since 1960, peaking in 1988. Since then, catch has fluctuated, declining recently to an estimated 5,200 mt in 2010.

In Divisions 3LN, estimated biomass indices decreased following the period of increased catch through the early 1990s, but have since increased, particularly since 2006. Estimated biomass indices appear to be above the long-term average during recent years, suggesting that there has not been a change in the status of the stock in recent years, particularly since the reopening of the fishery in 2010. In Division 3O, despite considerable variability in previous survey catch, mean weight per tow has increased substantially since 2002, suggesting improvement in the status of the stock (NAFO 2011). A new assessment for this stock is scheduled in 2013.

#### 4.1.7 Northern Shortfin Squid (*Illex illecebrosus*) in Subareas 3+4

In the late 1970s, catch of *Illex* squid in Subareas 3+4 peaked at over 160,000 mt, but have more recently ranged between 57 – 7,000 mt, with about 120 mt being caught in 2010 and mostly from Division 3KL. Since 1980, catch has been well below established TACs. Canadian survey indices for *Illex* squid have varied substantially. Recent survey indices show a slight decline in abundance in recent years, with the 2010 survey index below the average since 1982. Mean body weight slightly increased in 2010, but is still below average. Overall, the stock is considered to be in a state of low productivity (NAFO 2011).

#### 4.1.8 Northern Shrimp (*Pandalid and Penaeus Sp.*) in Divisions 3LNO

Exploratory fishing on 3LNO shrimp began in 1993. A TAC was set in 2000. In recent years, Denmark has objected to TACs recommended by the Scientific Council. Accordingly, agreed upon TACs are higher than Scientific Council recommendations. However, with the exception of 2009, none of the annual TACs since 2007 have been exceeded based on catch data submitted by Contracting Parties. Recruitment estimates have increased from 2004 – 2008, but have since declined. A similar pattern has been observed in the biomass survey indices. Estimated exploitation rates have remained below 0.15 through 2009, but increase to 0.30 if the entire 2011 TAC is caught. If the 12,000 mt TAC is taken in 2012, the predicted exploitation rate would be 0.20. It is estimated that the female biomass is above, but approaching  $B_{lim}$  in 2011. That, in conjunction with the apparent decline in biomass over the past few years lead the Scientific Council to recommend that exploitation rates should be kept below current levels (NAFO 2011).

**Table 7. 3LNO Northern Shrimp TACs and Catch Since 2007**

Year	TAC (mt)	Catch (mt) <sup>1</sup>
2007	22,000	21,000
2008	25,000	25,000
2009	30,000 <sup>2</sup>	26,000
2010	30,000 <sup>2</sup>	20,000
2011	19,000 <sup>2</sup>	
2012	12,000	

<sup>1</sup>From June 2011 NAFO Scientific Council Report (NAFO 2011)

<sup>2</sup>Although the recommended TAC was 25,000 mt and 17,000 mt in 2009 – 2010 and 2011, respectively, Denmark objected to the recommended quota, thereby increasing the agreed upon quota to that outlined in this table.

#### 4.1.9 Thorny Skate (*Amblyraja radiata*) in Divisions 3L, 3N, 3O and Subdivision 3Ps

Although commercial catches of skates in the NRA comprise a mix of skate species, the skate fishery on the Grand Banks can be considered a directed fishery for thorny skate since this species comprises about 95 percent of the skate taken in Canadian and European Union (EU)-Spain catches. Nominal catches increased in the mid-1980s with the commencement of a directed fishery for thorny skate. The main participants in this fishery were EU-Spain, Canada, Russia and EU-Portugal. Canada fished for thorny skate in the western part of Division 3O and in Subdivision 3Ps while the remainder of the countries fished primarily in Division 3N and to a lesser extent in Division 3O. Prior to the mid-1980s, this species was commonly taken as a by-catch in other fisheries and continues to be taken as a by-catch, mainly in the Greenland halibut fishery and in the Canadian mixed fishery for thorny skate, white hake and monkfish in Division 3NOPS in the Canadian zone. Catches in Division 3LNOPS peaked at about 36,000 mt in 1991. From 1985 to 1991, catches averaged 25,000 mt but were lower during 1992-1995 (9,600 mt). During 2005 – 2010, catch averaged just under 5,000 mt in Division 3LNO, well below established quotas. Catch in 2010 is the lowest on record. There is a TAC of 8,500 mt for thorny skate within Division 3LNO for 2012 (NAFO 2011).

**Table 8. 3LNO Thorny Skate Catch in Relation to TACs (2005 - 2010)**

<b>Year</b>	<b>TAC (mt)</b>	<b>Catch (mt)</b>
2005	13,500	3,500
2006	13,500	5,500
2007	13,500	6,200
2008	13,500	5,600
2009	13,500	5,700
2010	12,000	5,000

From June 2011 NAFO Scientific Council Report (NAFO 2011)

Canadian spring survey biomass indices fluctuated without trend prior to the mid-1980s, then rapidly declined until the early 1990s. During 1996-2008, biomass indices have been low and relatively stable. Canadian autumn surveys show similar patterns. The Spanish survey in the NRA (1997-2008) shows a similar pattern to that in the Canadian surveys. No information is available on recruitment. Although the state of the stock is unclear relative to the historic (pre-1980s) period, stock biomass has been relatively stable from 1996-2010, but at much lower levels than in the mid-1980s. Based on available information, the Scientific Council indicated that there is no evidence in any change to current stock status in its June 2011 report (NAFO 2011). The next assessment is planned for 2012.

#### 4.2 Marine Mammals and Protected Species

The following protected species are found in the NAFO Convention Area. A number of them are listed under the ESA of 1973 as endangered or threatened and/or protected under the Marine Mammal Protection Act of 1972 (MMPA).

**Table 9. Species Protected Under the Endangered Species Act and Marine Mammal Protection Act that May Occur in the NAFO Convention Area**

<i>Cetaceans</i>	<i>Status</i>
Northern right whale ( <i>Eubalaena glacialis</i> )	Endangered
Humpback whale ( <i>Megaptera novaeangliae</i> )	Endangered
Fin whale ( <i>Balaenoptera physalus</i> )	Endangered
Blue whale ( <i>Balaenoptera musculus</i> )	Endangered
Sei whale ( <i>Balaenoptera borealis</i> )	Endangered
Sperm whale ( <i>Physeter macrocephalus</i> )	Endangered
Minke whale ( <i>Balaenoptera acutorostrata</i> )	Protected
Pilot whale ( <i>Globicephala</i> spp.)	Protected
Spotted dolphin ( <i>Stenella frontalis</i> )	Protected
Atlantic white-sided dolphin ( <i>Lagenorhynchus acutus</i> )	Protected
Common dolphin ( <i>Delphinus delphis</i> )	Protected
Bottlenose dolphin: coastal stocks ( <i>Tursiops truncatus</i> )	Protected
Harbor porpoise ( <i>Phocoena phocoena</i> )	Protected
<i>Seals</i>	
Harbor seal ( <i>Phoca vitulina</i> )	Protected
Gray seal ( <i>Halichoerus grypus</i> )	Protected
Harp seal ( <i>Phoca groenlandica</i> )	Protected
Hooded seal ( <i>Cystophora cristata</i> )	Protected
<i>Sea Turtles</i>	
Leatherback sea turtle ( <i>Dermochelys coriacea</i> )	Endangered
Kemp's ridley sea turtle ( <i>Lepidochelys kempii</i> )	Endangered
Green sea turtle ( <i>Chelonia mydas</i> )	Endangered*
Loggerhead sea turtle ( <i>Caretta caretta</i> )	
Northwest Atlantic Distinct Population Segment	Threatened
<i>Fish</i>	
Atlantic sturgeon ( <i>Acipenser oxyrinchus</i> )	
Gulf of Maine DPS	Threatened
New York Bight DPS	Endangered
Chesapeake Bay DPS	Endangered
Carolina DPS	Endangered
South Atlantic DPS	Endangered
Cusk ( <i>Brosme brosme</i> )	Candidate
Alewife ( <i>Alosa pseudoharengus</i> )	Candidate
Blueback Herring ( <i>Alosa aestivalis</i> )	Candidate

*\*Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters.*

It is expected that all of the species identified have the potential to be affected by the operation of trawl fisheries in the NAFO Convention Area, including the NRA. However, given differences in abundance, distribution and migratory patterns, it is likely that any effects that may occur, as well as the magnitude of effects when they do occur, will vary among the species. Summary information is provided here that describes the general distribution of cetaceans, pinnipeds, sturgeon, and sea turtles within the NAFO Convention Area as well as the known interactions of trawl gear with these protected species. Background information on the range-wide status of sea turtle and marine mammal species that occur in the area and are known or suspected of interacting with fishing gear (demersal gear including trawls, gillnets, and longline types) can be found in a number of published documents. These documents include sea turtle status reviews and biological reports (NMFS and USFWS 1995; Turtle Expert Working Group 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b, recovery plans for ESA-listed cetaceans and sea turtles (NMFS 1991, 2005; NMFS and USFWS 1991a, 1991b; NMFS and USFWS 1992), the marine mammal stock assessment reports (e.g., Waring et al. 1999, 2006, 2009, 2011), and other publications (e.g., Clapham et al. 1999, Perry et al. 1999, Best et al. 2001, and IWC 2001). Additional ESA background information on the range-wide status of these species and a description of critical habitat can be found in a number of published documents including recent sea turtle status reviews and biological reports (NMFS and USFWS 1995, TEWG 2000, NMFS SEFSC 2001, NMFS and USFWS 2007a), loggerhead recovery team report (NMFS and USFWS 2008), status reviews and stock assessments, Recovery Plans for the humpback whale (NMFS 1991), right whale (NMFS 1991, NMFS 2005), and fin and sei whale (NMFS 1998).

### **Sea Turtles**

Loggerhead and leatherback sea turtles are known to occur in the NAFO Convention Area based upon recent fishery interaction data submitted by Contracting Parties (NAFO 2010). Bycatch of sea turtles are mostly associated with the pelagic longline fisheries for tuna and swordfish that occur south and west of the Flemish Cap. These large pelagic fisheries are not managed by NAFO. France (in respect of St. Pierre et Miquelon) has reported one incident of leatherback turtle bycatch in a gillnet in its coastal fishery, while Denmark (in respect of Faroe Islands and Greenland) has reported that turtles do not occur in Greenlandic waters. Canada has recorded about 50 interactions with leatherback sea turtles during 2007 and part of 2008, and 41 from July 2009 through August 2010 in their longline fisheries. All turtles were released alive. A working paper presented by the NAFO Secretariat at the 2007 Annual Meeting (NAFO 2007) noted, "Observer reports received so far do not indicate any incident of sea turtle interaction in the NRA."

Species distribution information indicates that Kemp's ridley and green turtles may also occur in this area, albeit less frequently (NMFS and USFWS 2007b; NMFS and USFWS 2007c). In general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring (James et al. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al.

1987). The trend is reversed in the fall as water temperatures cool. By December, turtles have passed Cape Hatteras, returning to more southern waters for the winter (James et al. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al. 1987).

On September 22, 2011, NMFS and USFWS issued a final rule (76 FR 58868) determining that the loggerhead sea turtle is composed of nine DPSs (as defined in Conant et al., 2009) that constitute species that may be listed as threatened or endangered under the ESA. Five DPSs were listed as endangered (North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea), and four DPSs were listed as threatened (Northwest Atlantic Ocean, South Atlantic Ocean, Southeast Indo-Pacific Ocean, and Southwest Indian Ocean). The Northwest Atlantic Ocean (NWA) DPS was determined to be threatened based on review of nesting data available after the proposed rule was published, information provided in public comments on the proposed rule, and further discussions within the agencies. NMFS and USFWS found that an endangered status for the NWA DPS was not warranted given the large size of the nesting population, the overall nesting population remains widespread, the trend for the nesting population appears to be stabilizing, and substantial conservation efforts are underway to address threats. The NRA is located entirely within the NWA DPS for loggerhead sea turtles and borders the NEA DPS, as defined in Conant et al. (2009). Although the NRA borders the NEA DPS for loggerhead sea turtles, based upon a manuscript currently under review, the only loggerhead DPS that would be impacted by U.S. vessels operating within the NRA under this proposed action is the NWA DPS (P. Dutton, NMFS, personal communication, 2012).

### **Large Cetaceans (Baleen Whales and Sperm Whale)**

The western North Atlantic baleen whale species (North Atlantic right, humpback, fin, sei, and minke) follow a general annual pattern of migration from high latitude summer foraging grounds, including the Gulf and Maine and Georges Bank, to low latitude winter calving grounds (Perry et al. 1999, Kenney 2002). However, this is an oversimplification of species movements, and the complete winter distribution of most species is unclear (Perry et al. 1999, Waring et al. 2011). Studies of some of the large baleen whales (right, humpback, and fin) have demonstrated the presence of each species in higher latitude waters even in the winter (Swingle et al. 1993, Wiley et al. 1995, Perry et al. 1999, Brown et al. 2002). Blue whales are most often sighted on the east coast of Canada, particularly in the Gulf of St. Lawrence, and occurs only infrequently within the U.S. EEZ (Waring et al. 2002).

Available information suggests that the North Atlantic right whale population increased at a rate of 1.8 percent per year between 1990 and 2005. The total number of North Atlantic right whales is estimated to be at least 361 animals in 2005 (Waring et al. 2011). The minimum rate of annual human-caused mortality and serious injury to right whales averaged 2.8 mortality or serious injury incidents per year during 2004 to 2008 (Waring et al. 2011). Of these, fishery interactions resulted in an average of 0.8 mortality or serious injury incidents per year.

The North Atlantic population of humpback whales is conservatively estimated to be 7,698 (Waring et al. 2011). The best estimate for the Gulf of Maine (GOM) stock of humpback whale population is 847 whales (Waring et al. 2011). Based on data available for selected areas and

time periods, the minimum population estimates for other western North Atlantic whale stocks are 3,269 fin whales, 208 sei whales (Nova Scotia stock), 3,539 sperm whales, and 6,909 minke whales (Waring et al. 2009). Current data suggest that the GOM humpback whale stock is steadily increasing in size (Waring 2011). Insufficient information exists to determine trends for these other large whale species.

Recent revisions to the Atlantic Large Whale Take Reduction Plan (ALWTRP) (72 FR 57104, October 5, 2007) continue to address entanglement risk of large whales (right, humpback, and fin whales, and acknowledge benefits to minke whales) in commercial fishing gear. The revisions seek to reduce the risk of death and serious injury from entanglements that do occur.

Generally, trawl gear is not known to interact with large whales. However, according to NAFO observer information, one blue whale was reported to have been caught in trawl gear in 2006. Unfortunately, the observer did not provide further information concerning the incident such as whether the whale was dead or alive. However, the observer record indicates that the vessel was 167 ft (51 m) in length with a capacity of 755 gross tons. The U.S. vessels that will be participating in this fishery are much smaller in size, and use much smaller nets. As such, the likelihood of interaction between U.S. trawl vessels and large whales in the NRA is negligible. Therefore, these species should not be included in the listing of marine mammals that might be impacted by U.S. vessels fishing for NAFO managed species in the NRA.

#### **Small Cetaceans (Dolphins, Harbor Porpoise and Pilot Whale)**

Numerous small cetacean species (dolphins, pilot whales, and harbor porpoise) occur within the area from Cape Hatteras through the Gulf of Maine, and likely occur in the NAFO Convention Area, including the NRA, particularly on the Grand Banks where U.S. vessels will be primarily fishing. Small cetaceans are known to be captured in trawl gear (Waring *et al.* 2006). There is anthropogenic mortality of numerous small cetacean species (dolphins, pilot whales, and harbor porpoise) in gear used by vessels that would operate in the NRA. Seasonal abundance and distribution of each species off the coast of the Northeast U.S. varies with respect to life history characteristics. Some species such as white-sided dolphin and harbor porpoise primarily occupy continental shelf waters. Other species such as the Risso's dolphin occur primarily in continental shelf edge and slope waters. Still other species like the common dolphin and the spotted dolphin occupy all three habitats. Waring et al. (2011) summarizes information on the western North Atlantic stocks of each species.

The following distribution information on the western North Atlantic stocks of each species has been pulled from Waring *et al.* (2006). Common dolphins are distributed along the continental slope (100 to 2,000 meters), and are associated with Gulf Stream features in waters off the northeastern U.S. coast. Migration onto the Scotian Shelf and continental shelf off Newfoundland occurs during summer and autumn when water temperatures exceed 11°C. Bottlenose dolphins occur seasonally over the outer continental shelf and inner slope waters as far north as Georges, with sightings along the continental shelf break from Georges Bank to Cape Hatteras during spring and summer. In Canadian waters, bottlenose dolphins have occasionally been sighted on the Scotian Shelf, particularly in the Gully. White-sided dolphins are found in temperate and sub-polar waters of the North Atlantic, primarily in continental shelf waters to the 100 m depth contour. The species inhabits waters from central West Greenland to North Carolina (about 35°N) and perhaps as far east as 43°W. Distribution of sightings,

strandings and incidental takes suggest the possible existence of three stocks units: Gulf of Maine, Gulf of St. Lawrence and Labrador Sea stocks. Atlantic spotted dolphins are distributed in tropical and warm temperate waters of the western North Atlantic. Off the northeast U.S. coast, spotted dolphins are widely distributed on the continental shelf, along the continental shelf edge, and offshore over the deep ocean south of 40° N. The distribution of this species off Canada is unclear. Minke whales have a cosmopolitan distribution in polar, temperate and tropical waters. In the North Atlantic there are four recognized populations: Canadian East Coast, west Greenland, central North Atlantic, and northeastern North Atlantic. Pilot whales (*Globicephala* sp.) are distributed principally along the continental shelf edge in the winter and early spring off the northeast U.S. coast. In general, pilot whales occupy areas of high relief or submerged banks. They are also associated with the Gulf Stream north wall and thermal fronts along the continental shelf edge. The long-finned pilot whale is distributed from North Carolina to North Africa (and the Mediterranean) and north to Iceland, Greenland and the Barents Sea, while the short-finned pilot whale occupies a more southerly distribution. Harbor porpoises are concentrated in the northern Gulf of Maine and southern Bay of Fundy region, generally in waters less than 150m deep, with a few sightings in the upper Bay of Fundy and on the northern edge of Georges Bank. Gaskin (1984, 1992) proposed that there were four separate populations in the western North Atlantic: The Gulf of Maine/Bay of Fundy, Gulf of St. Lawrence, Newfoundland and Greenland populations. Recent analyses involving mtDNA, organochlorine, heavy metals, and life history parameters support this proposal.

### **Pinnipeds**

Four species of seals are expected to occur in the NAFO Convention Area. The following is a summary of the distribution of these four seal species, which has been pulled from Waring *et al.*, 2006. Of these four species harbor seals have the most extensive distribution. In the western North Atlantic, they are distributed from the eastern Canadian Arctic and Greenland south to southern New England and New York, and occasionally to the Carolinas. Grey seals are the second most common seal species in the Northwest Atlantic. This species is found on both sides of the North Atlantic, with three major populations: Eastern Canada, northwestern Europe and the Baltic Sea. The western North Atlantic population occurs from New England to Labrador and is centered in the Sable Island region of Nova Scotia. The harp seal occurs throughout much of the North Atlantic and Arctic Oceans. The largest stock of harp seals in the world occurs in the western North Atlantic off eastern Canada and is divided into two breeding herds which breed on the pack ice. The Front herd breeds off the coast of Newfoundland and Labrador, and the Gulf herd breeds near the Magdalen Islands in the middle of the Gulf of St. Lawrence. The hooded seal occurs throughout much of the North Atlantic and Arctic Oceans preferring deeper water and occurring farther offshore than harp seals. The world's hooded seal population is divided into three separate stocks, each identified with a specific breeding site. One stock, which whelps off the coast of eastern Canada, is divided into two breeding herds (Front and Gulf) which breed on the pack ice. The Front herd (largest) breeds off the coast of Newfoundland and Labrador and the Gulf herd breeds in the Gulf of St. Lawrence. The second stock breeds in the Davis Strait, and the third stock occurs on the West Ice off eastern Greenland. All four species of seals are known to be captured in trawl gear (Waring *et al.* 2006).



## **Fish**

Atlantic sturgeon is an anadromous species that spawns in relatively low salinity, river environments, but spends most of its life in the marine and estuarine environments from Labrador, Canada to the Saint Johns River, Florida (Holland and Yelverton 1973, Dovel and Berggen 1983, Waldman et al. 1996, Kynard and Horgan 2002, Dadswell 2006, ASSRT 2007). Tracking and tagging studies have shown that subadult and adult Atlantic sturgeon that originate from different rivers mix within the marine environment, utilizing ocean and estuarine waters for life functions such as foraging and overwintering (Stein et al. 2004a, Dadswell 2006, ASSRT 2007, Laney et al. 2007, Dunton et al. 2010). Fishery-dependent data as well as fishery-independent data demonstrate that Atlantic sturgeon use relatively shallow inshore areas of the continental shelf; primarily waters less than 50 m (Stein et al. 2004b, ASMFC 2007, Dunton et al. 2010). The data also suggest regional differences in Atlantic sturgeon depth distribution with sturgeon observed in waters primarily less than 20 m in the Mid-Atlantic Bight and in deeper waters in the Gulf of Maine (Stein et al. 2004b, ASMFC 2007, Dunton et al. 2010). Information on population sizes for each Atlantic sturgeon DPS is very limited. Based on the best available information, NMFS has concluded that bycatch, vessel strikes, water quality and water availability, dams, lack of regulatory mechanisms for protecting the fish, and dredging are the most significant threats to Atlantic sturgeon.

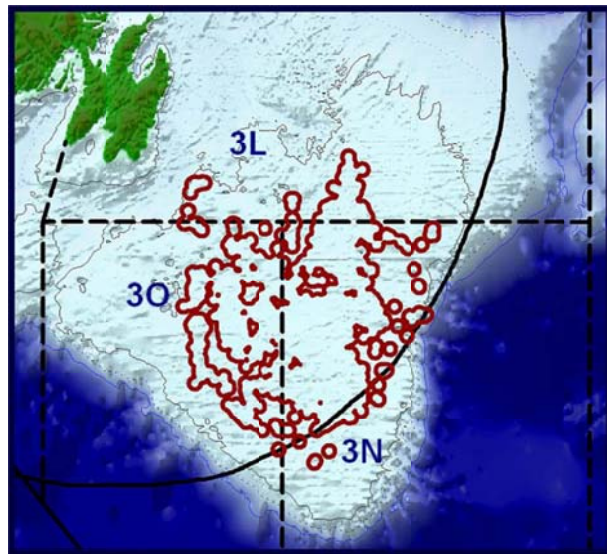
Comprehensive information on current abundance of Atlantic sturgeon is lacking for all of the spawning rivers (ASSRT 2007). Based on data through 1998, an estimate of 863 spawning adults per year was developed for the Hudson River (Kahnle et al. 2007), and an estimate of 343 spawning adults per year is available for the Altamaha River, GA, based on data collected in 2004-2005 (Schueller and Peterson 2006). Data collected from the Hudson River and Altamaha River studies cannot be used to estimate the total number of adults in either subpopulation, since mature Atlantic sturgeon may not spawn every year, and it is unclear to what extent mature fish in a non-spawning condition occur on the spawning grounds. Nevertheless, since the Hudson and Altamaha Rivers are presumed to have the healthiest Atlantic sturgeon subpopulations within the United States, other U.S. subpopulations are predicted to have fewer spawning adults than either the Hudson or the Altamaha (ASSRT 2007). It is also important to note that the estimates above represent only a fraction of the total population size as spawning adults comprise only a portion of the total population (e.g., this estimate does not include subadults and early life stages)

A status review for Atlantic sturgeon was completed in 2007 which indicated that five Distinct Population Segments (DPS) of Atlantic sturgeon exist in the United States (ASSRT 2007). On October 6, 2010, NMFS proposed listing these five DPSs of Atlantic sturgeon along the U.S. East Coast as either threatened or endangered species (75 FR 61872 and 75 FR 61904). Final rules listing the five DPSs of Atlantic sturgeon were published in the *Federal Register* on February 6, 2012 (77 FR 5880 and 75 FR 5914). The Gulf of Maine DPS of Atlantic sturgeon is listed as threatened, and the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon are listed as endangered. Sturgeon have been caught within the NAFO Convention Area, although species identification and precise catch location is not available. It is also unknown whether sturgeon from any of the five DPSs are found within the NAFO Convention Area. Atlantic sturgeon have been captured in both small and large mesh otter trawl gear (Stein et al. 2004a, ASMFC 2007).

### 4.3 Physical Environment - Habitat Information

The Grand Bank is an extension of the continental shelf located southeast of Newfoundland and Labrador that comprises approximately 280,000 km<sup>2</sup> (26 percent) of the Canadian Atlantic Shelf (Kulka 1991). This region is relatively flat, having an average depth of about 100 m. In general, the habitat can be described as being pebbly to the east changing to sand and mud bottoms westward (Kulka 1991). However, some areas of the Grand Bank are covered with an overlay of scattered boulders (Kulka 1991). The yellowtail flounder fishery typically occurs over the sand and muddy portions of the Bank. Historically, the yellowtail fishery outside of the Canadian EEZ occurs in a very small region on the upper tail of the Grand Bank (Kulka 2009) (Figure 9).

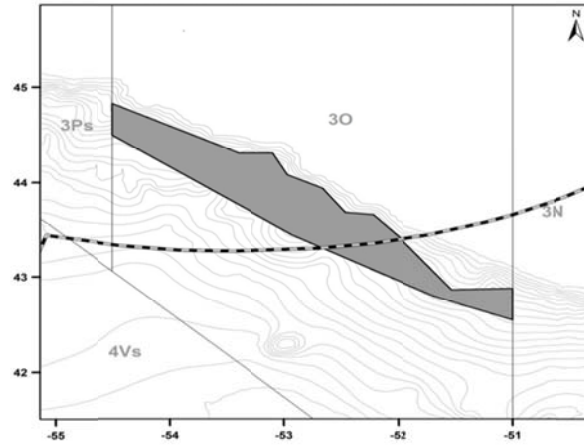
**Figure 9. Cumulative Yellowtail Flounder Fishing Effort on the Grank Banks During 2000 - 2008 (solid black arc is the Canadian EEZ, while dashed lines are the boundaries of NAFO Divisions 3LNO) (from Kukla 2009)**



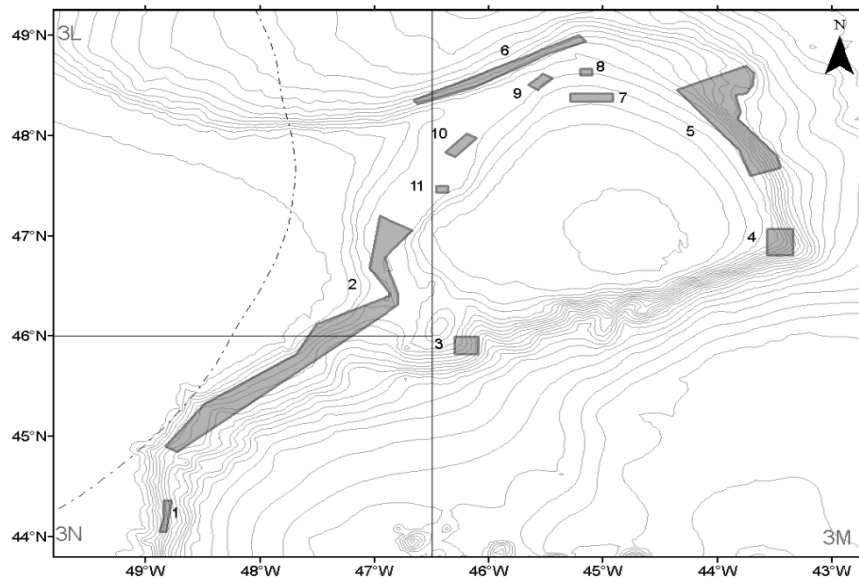
On December 8, 2006, the United Nations General Assembly (UNGA) passed resolution 61/105, which called upon States “to take action immediately, individually and through regional fisheries management organizations and arrangements (RFMOAs), to sustainably manage fish stocks and protect vulnerable marine ecosystems (VME), including seamounts, hydrothermal vents and cold water corals, from destructive fishing practices.” This resolution also called upon RFMOAs to adopt and implement measures for their respective regulatory areas no later than December 31, 2008. As a result, NAFO began development of measures in early 2008 to identify existing bottom fishing areas (i.e., establish a footprint); identify VMEs in the NRA; establish a protocol for exploratory fisheries; and establish provisions for encounters with VMEs, including the reporting of such encounters to the NAFO Secretariat. In 2008, the Fisheries Commission proposed new VME measures (NAFO 2008a) and interim encounter provisions (NAFO 2008b) that have since been integrated into the NCEM. Among these provisions are seamount, coral, and sponge protection zones that are closed to bottom fishing activities through December 31, 2014 (see Article 16 of the NCEM and Figures 10 and 11) and mechanisms to evaluate the

impacts of fishing activities beyond areas previously fished (i.e. beyond the NRA “footprint” specified in Article 17 of the NCEM – see Figure 12). The seamount, coral, and sponge protection zones may be extended based upon a review of further data on bottom fishing activity and interactions with VME. These measures are intended to prevent fishing activity from disturbing areas in which VMEs are known to occur as well as collect information on the location of VMEs when encountered.

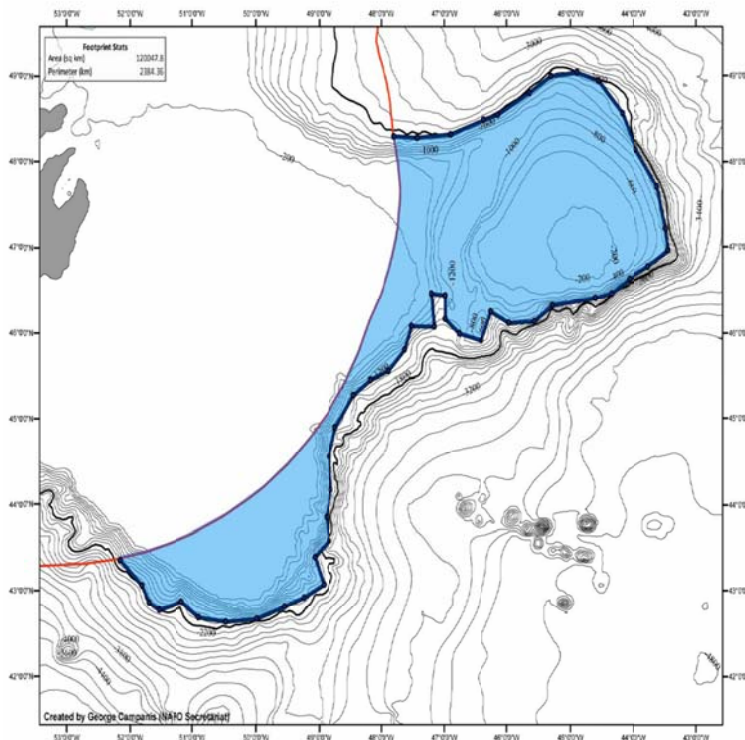
**Figure 10. Coral Area Closed to Bottom Fishing (Article 16.4 of the NCEM)**



**Figure 11. Locations of Sponge and Coral Concentrations Closed to Bottom Fishing (Article 16.5 of the NCEM)**



**Figure 12. NAFO Regulatory Area Footprint**



#### 4.4 Human Environment

##### 4.4.1 Vessels and Ports

The U.S. currently does not have a fishing presence in the NRA. However, after several years of negotiations, the U.S. signed an arrangement with Canada at the 30<sup>th</sup> Annual Meeting of NAFO in Vigo, Spain (September 2008) that would transfer up to 1,500 mt of Div. 3LNO yellowtail flounder from Canada to the U.S. on an annual basis for a period of 10 years, beginning the year the agreement is activated.

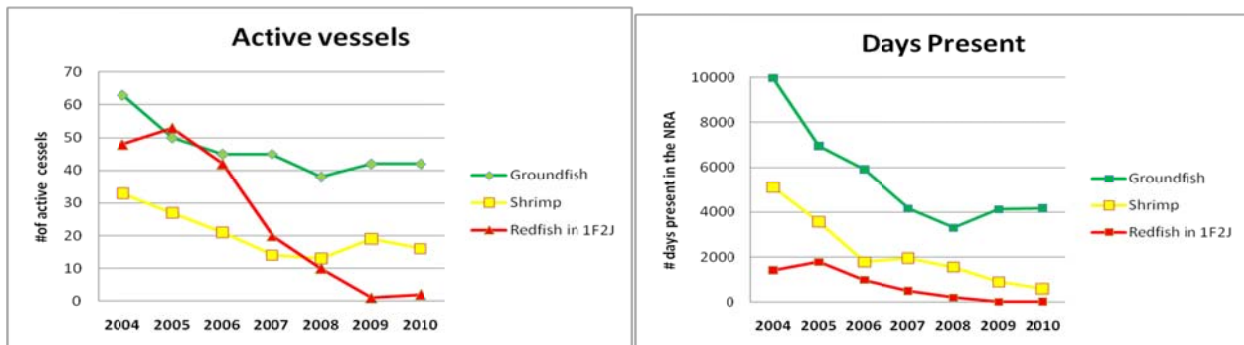
Each year, NMFS publishes a notice in the *Federal Register* notifying the public that quota and effort allocation for species managed by NAFO is available to U.S. entities. This notice also solicits public interest in harvesting these quotas or using available effort allocations. A decision to distribute available quota or effort allocation is based on an evaluation of the greatest overall net benefit to the U.S. In previous years, owners of trawl vessels with a history of fishing in the Northeast multispecies fishery have expressed interest in fishing in the NRA. These vessels typically use ice to preserve the catch. However, in 2011 a proposal was received by a U.S. bottom trawl freezer vessel whose owner intended to land frozen product in Canada for shipping and later processing in the U.S. Another entity proposed to charter Canadian vessels to harvest fish, with product shipped and processed in the U.S. Thus, the human environment affected by this action includes owners of predominantly bottom trawling commercial fishing vessels and their respective vessel captains and crew, and shoreside processors.

In terms of U.S. ports likely to be impacted by the issuance of permits to fish in the NRA, previous interested parties operated vessels or processing plants out of Portland, ME; Boston, MA; or New Bedford, MA. These are three of the largest fishing ports in New England. One hundred four vessels listed Portland as their home port, landing just over \$13 million worth of fish in 2006 (NEFMC 2010). The value of groundfish species landed by such vessels averaged \$14 million from 1996 – 2006, but was only \$10 million in 2006. In 2006, 46 vessels listed Boston as their home port. More than 11,500 mt of fish are processed each year in Boston, but only 4,000 mt of that catch is landed by vessels that dock at the Fish Pier (BHA 2004). Groundfish species were the most valuable species landed in Boston during 1996 - 2006, followed by monkfish and lobster (NEFMC 2010). In 2006, the value of fish landed by New Bedford vessels topped \$281 million, mostly due to the high-value scallop fishery. The value of groundfish species landed by New Bedford vessels averaged nearly \$31 million during 1996 – 2006 (NEFMC 2010). As of 2006, approximately 273 commercial vessels list New Bedford as their home port, while 44 fish wholesale companies, 75 seafood processors, and about 200 shore-side industries are also found in New Bedford (Hall-Arber 2001).

Entities interested in fishing within the NRA, including the one vessel that would be issued a permit to fish in the NRA during 2011, are exploring the possibility of landing the yellowtail flounder in Canada (Newfoundland or Nova Scotia) or St. Pierre (French territory). Since the 2008 yellowtail flounder agreement between the U.S. and Canada is valid for 10 years, it is difficult to predict where future participants may land their catch. As a result, it is presumed that other major New England fishing ports, such as Boston and Gloucester, MA, may be affected by this action at some point in the future. For an in-depth discussion of fishing ports, please refer to the Community Profiles for Northeast US Fisheries (NEFSC 2009) ([http://www.nefsc.noaa.gov/read/socialsci/community\\_profiles](http://www.nefsc.noaa.gov/read/socialsci/community_profiles)).

In terms of non-U.S. vessels participating in the NAFO’s Northwest Atlantic trawl fishery, it should be noted that the number of active vessels targeting groundfish species such as yellowtail flounder, has steadily declined since 2004. In 2004, there were 63 vessels fishing for groundfish species in the NRA, but has dropped to 42 in 2010. In addition, the number of days present by groundfish vessels has also declined steadily since 2004; from 9,966 days present in 2004 to just over 4,000 days present in 2010 (Figure 13).

**Figure 13. Number of Vessels and Days Present in the NAFO Regulatory Area by Fishery Type**



#### 4.4.2 Landings

Recent landings of target and bycatch species by vessels fishing in the NAFO Convention Area are provided in Section **Error! Reference source not found.** of this document. In summary, landings of the primary target species (yellowtail flounder) were far below the established quota since 2005, with landings of yellowtail flounder in 2010 over 7,000 mt below the quota.

According to some sources, one reason the yellowtail flounder quota has not been fully harvested is due to poor markets for this species. Another reason is the high bycatch rate of American plaice, particularly in the summer months, which prevents vessels from effectively targeting the yellowtail flounder. It is important to note that none of these landings are from U.S. vessels, as the U.S. has not conducting fishing operations in the NRA for many years.

### 5.0 Environmental Consequences of the Proposed Action and Alternatives

Data used in the analyses below were obtained from the NAFO Secretariat, the Northeast Regional Office and the Northeast Fisheries Science Center of NMFS, and the Department of Fisheries and Oceans Canada (DFO).

#### 5.1 Target Species

Under the no action alternative, NMFS would not issue a HSFCA permit to any U.S. vessel to fish within the NRA. This would prevent any U.S. vessels from harvesting any NAFO-managed species, including the 1,500 mt of yellowtail flounder that could be transferred to the U.S. on a yearly basis by Canada. Since recent yellowtail flounder landings have been below the established quota, taking no action would maintain yellowtail fishing effort and catch at, or slightly below, existing levels. Further, U.S. vessels would not be able to harvest the Division 3M redfish, Sub-Area 3 and 4 *Illex* squid, and 3L shrimp allocated to the U.S., or other species available to U.S. vessels under the “others” quotas, thereby reducing impacts on these species. As a result, the no action alternative is expected to have positive biological impacts on target species in comparison to the proposed action.

Under the proposed action, NMFS would issue a HSFCA permit to one or more U.S. vessels to fish within the NRA for species allocated to the U.S. In comparison to the no action alternative, the proposed action is likely to result in a negligible impact to the target species, including species allocated directly to the U.S. (3M redfish, 3LNO yellowtail flounder, Sub-Areas 3 and 4 *Illex* squid, and 3L shrimp) or available to the U.S. as part of the “others” quotas for each species (3LN and 3O redfish, 3M cod, white hake, and skates). NAFO establishes quotas for each managed stock on an annual or multi-year basis using the best available scientific advice provided by the Scientific Council. As noted in Section 4.1.1, yellowtail stock size is currently 1.7 times  $B_{MSY}$ . The 1,500 mt of yellowtail flounder quota that could be transferred to the U.S. from Canada on a yearly basis represents approximately 9 percent of the total quota allocated for this fishery in 2012. Similarly, U.S. quotas for other species (69 mt of 3M redfish, 453 mt of Sub-Areas 3 and 4 *Illex* squid, and 133 mt of 3L shrimp in 2012) represent a fraction of the total available catch (1.1 percent, 1.3 percent, and 1.1 percent, respectively). According to the agreement signed by the U.S. and Canada, this quota transfer will be adjusted proportionally if the NAFO adjusts the quota for yellowtail flounder, but shall be re-negotiated if the quota drops

below 15,500 mt. Under the proposed action, U.S. fishing vessels would be subject to the quotas established by NAFO. In order to avoid exceeding the U.S. or “others” quotas, NMFS will closely monitor landings and close the appropriate fishery for the remainder of the year once it is projected that the U.S. or “others” quota has been harvested. Therefore, the proposed action is expected to result in minimal impact to targeted species. To the extent that the entire quota is taken by permitted vessels, the proposed action may have a low negative impact relative to the no action alternative.

## 5.2 Impact on Non-target Species

The two species most frequently caught as bycatch in the NAFO yellowtail flounder fishery are cod and American plaice. This is due to the considerable spatial overlap of these two species with yellowtail flounder on the Grand Bank (Kulka 2009). Despite moratoriums on both of these species, the biomass of both species in NAFO remain at low levels. In fact, cod biomass in NAFO Divisions 3NO is currently near historic low levels. Thus, bycatch of cod and American plaice in the yellowtail flounder fishery may be having an impact on the recovery of these two species on the Grand Bank.

The no action alternative would mitigate any additional bycatch of cod and American plaice in the yellowtail fishery associated with a directed U.S. yellowtail fishery since this action would maintain fishing effort at below existing levels. Conversely, the proposed action would likely increase the total number of vessels targeting yellowtail flounder in the NRA, potentially increasing the incidental harvest of cod and American plaice. However, given that the amount of yellowtail flounder quota transferred to the U.S. by Canada represents less than 9 percent of the entire 2009 quota for this species, it is unlikely that a U.S. fishery would have a substantial effect on total fishing effort in the NAFO Convention Area, or the NRA, and thus on the bycatch levels of cod and American plaice. However, given the potential for reduced fishing effort on these stocks, the no action does have the potential to have low positive impacts relative to the proposed action, on non-target species.

A recent World Wildlife Fund study of cod and American plaice bycatch in the Grand Bank yellowtail flounder fishery indicates that bycatch rates of cod peak during the months of July through October, while American plaice bycatch rates peak in May through July (Kulka 2009). U.S. fishermen have indicated that they prefer to conduct fishing activities during the fall and winter due the poor quality of Grand Bank yellowtail flounder and increased bycatch during the summer months. If this is indeed the case, the potential impact of the U.S. yellowtail flounder fishery on the Grand Bank stocks of cod and American place could be mitigated by the timing preferences of U.S. fishery participants.

Finally, the NCEMs contain specific provisions to minimize bycatch of non-target species, such as a requirement that the vessel move 10 nautical miles if the bycatch of a moratorium species (such as American place) in any one haul exceeds 5 percent, or requirement that total annual bycatch of American plaice in the yellowtail flounder fishery cannot exceed 15 percent of a Contracting Party’s yellowtail flounder quota allocation. Thus, although the proposed action may have a low negative impact on non-target species, existing NAFO bycatch provisions will

serve to mitigate the potential impact of the U.S. fishing operations on these species within the NRA.

### 5.3 Impact on Protected Species

Taking no action would maintain fishing effort in the NRA at, or possibly even slightly below, existing levels. As a result, there would be no additional opportunity for interactions to occur between the fishing gear used in the yellowtail flounder fishery and marine mammals or turtles listed under the ESA. Therefore, taking no action would likely have little effect on protected species, but may be a low positive impact, relative to the proposed action as there would be the potential for less interactions.

The proposed action is expected to result in negligible impacts to marine mammals or sea turtles in comparison to taking no action (i.e., levels already occurring in the fishery) since it involves a limited number of vessels that are fishing under a limited quota allocation. Further, the proposed action is not likely to impact ESA-listed large whales because these species have generally known to not interact with trawl gear, the gear that would be used in this fishery. Although there was one interaction between a blue whale and a NAFO trawl vessel in 2006, the vessel was a 167 ft (51 m) trawl vessel with a capacity of 755 gross tons, and the incident appears to be an extremely rare occurrence based on available NAFO observer data. The U.S. vessels participating in this fishery will be of a much smaller size (70 to 120 ft in length and less than 200 gross tons) and using much smaller trawl nets, which are not known to interact with large whales. Therefore, this action is not expected to impact other marine mammals in the NRA. Although ESA-listed sea turtles have been taken in the Canadian longline fishery, there is no evidence that sea turtles are taken in trawl gear fisheries within the NRA. Thus, this action is not expected to have a negative impact on the sea turtle population in the Western North Atlantic.

Sturgeon have been caught within the NAFO Convention Area. However, neither the specific species, nor the exact location within the NAFO Convention Area or the NRA in which a majority of sturgeon were caught are identified in the available data. For example, from 2001 – 2010, a total of 131 sturgeon were caught within the NAFO Convention Area. Of these, 7 sturgeon were caught within Division 4T (at the mouth of the St. Lawrence River within the Canadian EEZ), while 124 sturgeon, nearly 95 percent of the sturgeon caught during this period, were caught in unspecified areas. Therefore, it is not possible to accurately determine whether there is sturgeon take within the NRA based on available data. Genetic data that could be used to evaluate whether any of these sturgeon originated within any of the five DPSs listed under the ESA (see Section 4.1.2 above) are also not available. Therefore, it is not possible to accurately identify whether Atlantic sturgeon, including one or more of the DPSs listed as endangered under the ESA, have been caught within the area in which U.S. vessels would operate under the proposed action. Operations by U.S. vessels within the NRA are expected to occur offshore, in deeper water, and far removed from the mouths of any river. Because expected operations would not occur within the area in which Atlantic sturgeon are likely to occur, it is unlikely that there will be any interactions with Atlantic sturgeon and, more specifically, a DPS listed as endangered under the ESA as part of the proposed action. Finally, as noted above, quota for species managed within the NAFO Convention Area that is available to U.S. vessels represents a



very small fraction (less than 10 percent) of the available quota for each species in 2012. Accordingly, U.S. operations under the proposed action would not greatly affect the amount of fishing effort occurring within the NAFO Convention Area or the NRA, and would be terminated once available quota has been harvested. Thus, the risk and potential scale of potential impacts of the proposed action on Atlantic sturgeon would be minimal and only slightly more than those under the no action alternative.

#### 5.4 Habitat Impacts

Taking no action would maintain trawl fishing effort in the NAFO Convention Area and the NRA at or below existing levels. As a result, the no action alternative would have no impact on benthic habitat in the NRA.

The proposed action is not expected to result in any additional impact to benthic habitat in the NRA in comparison to taking no action since participating vessels will be fishing in areas already subject to bottom trawl fishing activity. Furthermore, participating vessels will be required to comply with NAFO measures to protect VMEs contained in Chapter II (Articles 15 – 20) of the 2012 NCEMs, including interim encounter provisions which require vessels to move a minimum distance if they encounter VME indicator species above a threshold level specified in the NCEMs. U.S. vessels will also be required to abide by the seamount closure areas and coral protection zone established in the NCEMs, as noted above.

#### 5.5 Economic Impacts

There are negative economic impacts associated with taking no action, since it would preclude U.S. vessels from taking advantage of quota allocated or available to U.S. vessels, causing these vessels to miss out on a potential economic opportunity. Conversely, the proposed action would provide additional economic opportunity to U.S. vessels that have the ability to participate in the NAFO yellowtail flounder fishery and harvest other stocks allocated or available to U.S. vessels. This economic opportunity is particularly important in light of recent and forthcoming economic losses associated with reductions in the U.S. Northeast multispecies fishery. A discussion of the possible economic benefits associated the proposed action is provided in the following paragraphs.

Although negligible in comparison to the total NAFO Division 3LNO yellowtail flounder quota (~9 percent), the U.S. allocation of 1,500 mt equates to 3,306,934 lbs of yellowtail flounder. In 2010, U.S. vessels landed just under 3.7 million lbs of yellowtail flounder from all stock areas, worth approximately \$4.5 million using an average price of \$1.34 per lb for Georges Bank yellowtail flounder. Thus, the amount of NAFO yellowtail flounder quota available to U.S. vessels is nearly equivalent to recent U.S. landings, and may be worth upwards of \$4.4 million. In comparison, the amount of American plaice that U.S. vessels would be allowed to land under the 15 percent bycatch allowance would equate to 225 mt, which converts to 496,040 lbs. In 2010, U.S. vessels landed just under 3.4 million lbs of American plaice, worth about \$4.9 million using the average price of all groundfish during 2010 (\$1.44 per lb). Thus, the amount of American plaice that U.S. vessels could harvest from the NRA is about 15 percent of recent

landings from U.S. waters, and could be worth upwards of \$714,000 by itself, using the average groundfish price during 2010, an admittedly conservative estimate.

It is difficult to predict the economic value of the directed fishery for yellowtail flounder to U.S. vessels, since it is largely dependent on the ability of vessel owners to market the catch in either the U.S. or Canada. According to information obtained from DFO, the average landed price for yellowtail flounder during 2010 ranged from approximately \$0.11 to \$0.74 USD per lb, depending on the species. Prices were higher in 2011 for some species, with an average price of approximately \$0.14 to \$1.00 USD per lb (DFO 2012). However, the average 2010 landed price for similar species landed in the U.S. was much higher. A range of values for species allocated or available to U.S. vessels based on U.S. and Canadian price estimates is provided in Table 9.

**Table 10. U.S. and Canadian Ex-vessel Prices for Groundfish Species During 2010**

Species	Division	2012 Quotas (lb) <sup>1</sup>	Avg. 2010 Canadian Price/lb (USD)	Avg. 2010 U.S. Price/lb (USD)	Total Value Using Canadian Prices (USD)	Total Value Using U.S. Prices (USD)
Atlantic cod	3M	81,571	\$0.45	\$2.16	\$36,817	\$176,562
Redfish	3LN	77,162	\$0.28	\$0.58	\$21,748	\$44,469
	3M	152,119	\$0.28	\$0.58	\$42,874	\$87,667
	3O	220,462	\$0.28	\$0.58	\$62,136	\$127,053
American plaice	3LNO	330,693	\$0.33	\$1.45	\$109,789	\$480,510
Yellowtail flounder <sup>2</sup>	3LNO	3,306,934	\$0.25	\$1.27	\$819,270	\$4,215,483
Skate	3LNO	692,252	\$0.11	\$0.23	\$76,377	\$159,218
White hake	3NO	650,364	\$0.16	\$1.32	\$103,067	\$856,548
Illex Squid	Sub-Areas 3 and 4	998,694	\$0.26	\$0.31	\$258,438	\$308,040
Shrimp, <i>Pandalus Borealis</i> <sup>3</sup>	3L	293,215	\$0.74	\$0.54	\$216,455	\$158,336
<b>All Species</b>	<b>All Areas</b>	<b>6,803,465</b>			<b>\$1,746,972</b>	<b>\$6,613,887</b>

<sup>1</sup>Quota allocated or available to U.S. vessels, including "others" quotas.

<sup>2</sup>Assumes 1,500 mt is available in 2012. However, only 1,000 mt is available in 2012 because the U.S. did not transfer the 3L shrimp allocation to Canada during 2012. The full 1,500 mt may be available in future years.

<sup>3</sup>Assumes 133 mt is available in 2012. However, this quota was traded to Estonia in 2012, but may be available in future years.

It should be noted that the yellowtail flounder harvested from U.S. waters is of a higher quality than that landed from NAFO waters. This is primarily because U.S. landings are often for the fresh market and not frozen. Frozen product generally commands a lower price than fresh fish. Thus, the economic benefits of the proposed action depend upon the form that the fish is landed and where the fish is sold. In 2012, the U.S. vessel allocated NAFO quotas intends to land in Canada, but ship the product to the U.S. for processing. Therefore, the prices paid for such operations would be similar, but likely somewhat lower than the prices available for fish landed in the U.S. because the vessel intends to land frozen product. This was verified with

communications with the processor involved with the ownership and operation of this vessel (Scott Bode, personal communication). Accordingly, the potential economic benefits associated with this proposed action are expected to fall somewhere between \$1.7 and \$6.6 million dollars, assuming that all available U.S. quota would be harvested and that the U.S. would be able to harvest all available “others” quotas for each species. This is, obviously, overly optimistic, as those quotas will likely be partially or fully harvested by vessels of other Contracting Parties. In addition, unlike the no action alternative, additional economic benefits beyond revenues from landed fish would accrue to the fishing communities associated with vessels operating in the NRA under the proposed action. Such benefits are difficult to quantify, but include revenue associated with dock fees, vessel maintenance, catch processing, fuel, ice, food, observer coverage, and shipping the product from Canada to the United States for processing, among others.

Another factor that should be considered when assessing the potential economic impact of the proposed action is the high operating costs associated with sending a U.S. vessel to the Grand Banks to target yellowtail flounder. Vessels that participate in the U.S. NAFO fishery for yellowtail flounder must steam approximately 1,000 miles (5 days) out to the Grand Bank, resulting in high fuel costs. Additionally, vessel owners must comply with NAFO’s VMS and catch reporting requirements. Since some U.S. VMS units currently do not have complete satellite coverage throughout the NAFO Convention Area, vessels owners may be required to purchase new VMS units as well as incur additional data transmission fees due to the daily catch reporting requirements of NAFO. Initial purchase costs for VMS units is about \$3,000, but that cost may be at least partially offset by available subsidies from NMFS. Monthly operational and messaging costs for VMS units are likely to average about \$150. Finally, if vessel owners decide to land their catch in Canada, they will be required to obtain the necessary licenses and comply with prior notice requirements (of entry into EEZ, landing, etc.), all of which must be done through a shore agent (as required by Canadian fisheries law), which carries an associated cost. The costs for such an agent and license requirements are unknown.

Although the economic benefit of allowing U.S. vessels to fish within the NRA is uncertain, the proposed action is expected to have a positive impact on U.S. vessels compared to the no action alternative, since it would provide additional fishing opportunities beyond those available to the domestic fishery. The type of vessels that are expected to participate in this fishery are groundfish trawl vessels of 70 feet in length or larger. During 2010, there were 121 vessels actively fishing that were greater than 75 feet in length. However, it is expected that no more than 10 vessels will participate in the NAFO directed yellowtail fishery on an annual basis due to the high operating costs associated with participating in this fishery. In fact, only two vessel owners expressed an interest in participating in the 2009 fishery, the first year the quota transfer between Canada and the U.S. became effective, and only one owner for the 2012 fishery.

## 5.6 Social Impacts

Not issuing HSFCA permits to U.S. vessels so that they may participate in the NAFO yellowtail flounder fishery (no action) would prevent these vessels from taking advantage of the additional fishing opportunities presented by up to 1,500 mt of yellowtail flounder quota available from

Canada, as well as other species allocated or available to U.S. vessels operating in the NRA. As a result, the no action alternative would have a negative social impact.

The proposed action to issue HSFCA permits to U.S. vessels in order for them to participate in a NAFO directed yellowtail flounder fishery is expected to provide additional fishing opportunities to larger groundfish trawl vessels in comparison to taking no action. Many of these vessels are located in some of the larger groundfish ports of New Bedford, MA, Portland, ME, and Gloucester, MA. These ports have experienced substantial economic impacts since 2004, when Amendment 13 to the Northeast Multispecies FMP was implemented that resulted in considerable reductions in fishing effort. Thus, the additional fishing opportunities provided by the proposed action represents potential additional income to large trawl vessels from these ports. As noted in Section 5.3, the magnitude of this additional income is difficult to fully assess, but is largely based on where the vessel owners are able to land their catch, the form of the catch landed, and the markets available. Regardless of the price offered, the volume of quota available is expected to be sufficient to fully cover operational costs and enable participating vessels to generate additional fishing revenue unavailable under the no action alternative.

In addition to the potential for increased income, in comparison to taking no action, the proposed action would enable vessel owners and their crew, as well as those associated with the shorside vessel support industries, to keep working when they otherwise might not be able to. The ability to keep working has a positive social impact on both the individuals that participate in the U.S. NAFO yellowtail fishery and the communities in which they live. Furthermore, the anticipation over fishing in an area that no U.S. trawl vessel has fished in over 25 years, developing a new fishery, and potentially developing new markets for the fish to be harvested all have positive social impacts on vessel owners and their crew. Providing additional fishing opportunities to a beleaguered industry would also help to improve relations between commercial vessel operators and NMFS that have been strained by ongoing reductions in fishing effort and changing regulations, particularly in the Northeast groundfish fishery.

In contrast with the no action alternative, under the proposed action, there may be negative social impacts in terms of periods of separation between vessel crew members and their friends and families, as the NRA is over 1,000 miles away from the U.S., necessitating upwards of 5 days to arrive on the fishing grounds.

## 5.7 Cumulative Effects

### 5.7.1 Introduction to Cumulative Effects

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 in terms of the specific resource, ecosystem and human community being affected. This section serves to examine the potential direct and indirect effects of the alternatives in this action summarized in Section 3.0,

together with past, present, and reasonably foreseeable future actions that affect the baseline described in Section 4.0. 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 analysis has taken into account, to the extent possible, the relationship between the historical and present condition of the yellowtail flounder population and fishery in NAFO Divisions 3LNO, and the relationship of this fishery to the historical and present status of non-target species such as cod and American plaice. This analysis also takes into account the relationship between this action and past, present and future actions involving the Northeast multispecies fishery.

#### Temporal Scope of the VECs

The temporal scope for this analysis is primarily focused on the time period from 1994 forward since this was the year Amendment 5 to the NE Multispecies FMP was implemented establishing effort controls in for form of days-at-sea (DAS) for this fishery, and this is also the year the cod stock in NAFO Division 3NO went under moratorium. For endangered and other protected species, the context is largely focused on the 1980's and 1990's, when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ.

In terms of future actions, the analysis examines fishing and non-fishing actions that are in the development or permitting stage, or are in some way proposed or under discussion. This action examines the 10-year time period during which the yellowtail flounder arrangement between the U.S. and Canada is effective, from 2009 through 2018.

#### Geographic Scope of the VECs

The geographic scope of this cumulative effects analysis of impacts to fish species, endangered and protected species, and habitat for this action is the area in which fishing activities are expected to occur in the NRA, which is expected to be in the southeastern tail of the Grand Bank outside the Canadian EEZ where yellowtail flounder distribution overlaps with areas of existing bottom fishing activity (see Figures 1 and 12). The geographic range for community impacts is defined as those fishing communities located in New England (Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut) that contain vessels capable of participating in a yellowtail flounder fishery on the Grand Bank. The communities most likely impacted by this action are Portland, ME and New Bedford, MA.

#### Valued Ecosystem Components (VEC)

As noted in Section 4.0 (Description of the Affected Environment), the VECs that exist within the groundfish fishery are identified and the basis for their selection is established. Those VECs were identified as follows:

1. Target species (primarily yellowtail flounder)
2. Non-target species (incidental catch and bycatch)
3. Protected species
4. Habitat, and
5. Communities (includes social and economic impacts).

### 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.

NMFS staff determined that the 5 VECs (target species, non-target species, protected species, habitat and communities) are appropriate for the purpose of evaluating cumulative effects of the proposed action based on the environmental components that have historically been impacted by fishing, and statutory requirements to complete assessments of these factors under the Magnuson-Stevens Fishery Conservation and Management Act, ESA, Marine Mammal Protection Act, Regulatory Flexibility Act, and several Executive Orders. The VECs are intentionally broad (for example, there is one devoted to protected species, rather than just marine mammals, and one on habitat, rather than essential fish habitat (EFH)) to allow for flexibility in assessing all potential environmental factors that are likely to be impacted by the action. While subsistence fishing would ordinarily fall under the “communities” VEC, no subsistence fishing or Indian treaty fishing takes place in the area affected by this action.

U.S. vessels interested in fishing within the NRA may participate in any number of domestic fisheries, including the Northeast multispecies fishery, the *Illex* squid fishery, and the herring fishery. Given that NAFO species primarily involve groundfish species (yellowtail flounder, redfish, cod, white hake, American plaice, and witch flounder), this cumulative effects analysis focuses on management initiatives within the Northeast Multispecies FMP. Because interested vessels are likely currently issued one or more domestic fishery permits, these vessels must comply with all Federal air quality (engine emissions) and marine pollution regulations, and, therefore, do not significantly affect air or marine water quality. Consequently, this action would not likely result in any additional impact to air or marine water quality. Thus, this issue is not discussed further in the analyses below.

The baseline conditions of the resources and human community are subsequently summarized, although it is important to note that beyond the stocks managed under NAFO and protected species, quantitative metrics for the baseline conditions are not available.

#### 5.7.2 Past, present, and reasonably foreseeable future actions

A summary of the effects of past, present and reasonably foreseeable future actions is presented in Table 10. A thorough summary of the primary past, present, and reasonably foreseeable future actions effecting this interim action can be found in Section 7.6 and Appendix I of the Framework 47 EA (NEFMC 2012), including other previous actions taken in the NE Multispecies FMP. The baseline conditions of the resources and human community are also summarized here (in Table 11), although it is important to note that beyond the stocks subject to the NAFO quota, and protected species, quantitative metrics for the baseline conditions are not available. 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. MSA 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.

#### 5.7.2.1 Non-Fishing Actions and Activities

There are several ongoing, non-fishing actions that could potentially impact the Northwest Atlantic trawl fishery governed under NAFO. These activities include: chemical (e.g., pesticides and oil pollution), biological (e.g., invasive species and pathogens), and physical (e.g., dredging and disposal, coastal development) disturbances to riverine, inshore and offshore habitats; power plant operations (thermal pollution and entrainment of larvae); global warming; and energy projects such oil platforms. The majority of these activities tend to affect inshore areas and have a localized impact, and, therefore, will not have an impact on the region affected by this action. The types of activities that are most likely to affect the Northwest Atlantic trawl fishery and the species targeted in this fishery, such as yellowtail flounder, are oil platforms. Since 1997, three oil platforms have been installed on the Grand Bank. All three existing platforms are within the Canadian EEZ, but some of their exploration licenses extend beyond the 200-mile limit. The construction of the Hibernia platform, the world's largest oil platform, was completed in 1997. This oil platform is a permanent structure called a Gravity Base Platform (GBP) that is built to withstand the rough seas, winds, and icebergs of the Grand Bank, and is located approximately 200 miles east-southeast of St. John's, Newfoundland. Conversely, the Terra Nova and Sea Rose platforms, which were completed in 2002 and 2005, respectively, are Floating Production, Storage and Offloading (FPSO) vessels, which are not permanent structures. The Terra Nova platform is located approximately 220 miles east-southeast of St. John's, and the Sea Rose platform is located approximately 220 miles east of St. John's. There is a fourth oil platform, the Hebron, still in development. After several delays, construction of the concrete GBS structure is scheduled to get begin in 2012. The Hebron platform will be situated approximately 220 miles southeast of St. John's, Newfoundland.

#### 5.7.2.2 NAFO Actions

NAFO implemented a moratorium on fishing for cod in Divisions 3LNO in 1994 due to the poor status of the resource. One year later, NAFO implemented moratoriums on American plaice and witch flounder. In 1999, a moratorium was placed on 3M cod, but was later removed in 2010 following stock recovery. The remaining moratoriums are still in effect, since the Grand Bank stocks of all these three species are slow to rebuild. However, American plaice in NAFO Division 3LNO has shown an increase in biomass and declines in fishing effort since 2003, while the stocks of cod and witch flounder have remained at low levels.

In 1999, NAFO implemented bycatch provisions aimed at protecting stocks under moratorium and/or under a rebuilding plan (FC Doc. 99/12). These bycatch provisions were updated in 2000 to include a requirement that vessels move 5 nautical miles if they exceed the bycatch limits in any one haul, and change fishing area for a minimum of 48 hours if they exceed the bycatch

limits on any future haul (FC Doc. 00/15). The bycatch provisions were again updated in 2006 to include a requirement that vessels move 10 nautical miles if they exceed the bycatch limits in any one haul, leave that NAFO Division for a minimum of 60 hours if they exceed the bycatch limits on the next haul, and a 3-hour trial tow provision (FC Doc. 06/11). Furthermore, a footnote was added to the quota table at the 2008 Annual Meeting that specifically modified the bycatch provisions with respect to the bycatch of American plaice in the NAFO Divisions 3LNO yellowtail flounder fishery. This footnote was later revised in 2010 to state that Contracting Parties are subject to an overall American plaice bycatch of 15 percent of the yellowtail flounder quota allocation (i.e., a total bycatch cap for the yellowtail flounder fishery) versus a 5 percent bycatch allowance for each trip.

In response to UNGA Resolution 61/105, NAFO implemented and subsequently revised measures to protect VMEs including closure areas and interim encounter provisions (NAFO 2011). Similar to the bycatch provisions discussed above, if a vessel encounters VMEs beyond specified thresholds (60 kg of live coral or 600 kg of sponges per set in existing fishing areas), it is required to move at least 2 nautical miles away from the last tow to avoid future encounters. In addition, NAFO will establish a temporary closure of 2 mile radius surrounding tows that exceed the VME indicator species thresholds referenced above.

Finally, in response to efforts by the Food and Agricultural Organization of the United Nations (FAO) to develop a Global Agreement on Port State Measures, NAFO developed a Port State Control scheme, which was adopted at the 2008 Annual Meeting. The purpose of this scheme is to curb illegal, unregulated, and unreported fishing activities in the NAFO Convention Area by establishing a program that requires the port state to verify that a vessel is authorized to fish in the NAFO Convention Area, and that the catch on board is within the limits authorized, prior to that vessel being authorized to land its catch in a port of another Contracting Party.

In terms of reasonably foreseeable future actions, NAFO continues to make updates to its existing VME provisions based on the best scientific information available. It is anticipated that over the next several years, areas within the NAFO Convention Area and the NRA may be closed due to the verified presence of VMEs (based on results of research surveys and other information), and interim encounter threshold levels will be adjusted. Other than this ongoing work concerning protection of VMEs, and annual updates to the quota allocation table (based on the most recent scientific advice) it is difficult to predict the future actions at NAFO since they are highly dependent on issues that are raised at the global level by organizations such as the UNGA and FAO, or by other Regional Fishery Management Organizations or Contracting Parties themselves based on national initiatives.

#### 5.7.2.3 U.S. Fishery Management Actions

The Magnuson-Stevens Fishery Conservation and Management Act, as revised, was enacted to promote long-term positive impacts on the environment in the context of fisheries activities. More specifically, the 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.

Several actions have taken place since the mid-90s to reduce fishing effort in the Northeast multispecies fishery in an effort to rebuild stocks of species such as cod, haddock, and yellowtail flounder. Collectively, these actions have had a substantial effect on reducing fishing effort, which has generated interest in exploring new fishing opportunities to help offset some of the financial losses associated with actions in this fishery. A summary of the past, present, and foreseeable future management actions in the Northeast multispecies fishery resulting in a substantial decline in fishing effort is included in Section 3.3 of the EA prepared for Framework 47 to the FMP (NEFMC 2012). Updated assessments completed in late 2011 and early 2012 indicated slower than expected progress toward rebuilding overfished groundfish stocks. To comply with established rebuilding timelines, additional measures will likely be necessary within the next 2 years to ensure that overfishing is ended and stocks continue to rebuild. This will likely entail further effort reductions beyond those already achieved, and increased adverse economic impacts to affected entities. This could prompt vessels to seek additional fishing opportunities in other fisheries, including the Northwest Atlantic Trawl Fishery within the NRA.

As noted above, on February 6, 2012, NMFS issued two final rules (77 FR 5880-5912; 77 FR 5914-5982) listing five DPSs of Atlantic sturgeon as threatened or endangered. Four DPSs (New York Bight, Chesapeake Bay, Carolina and South Atlantic) are listed as endangered and one DPS (Gulf of Maine) is listed as threatened. The effective date of the listing is April 6, 2012. NMFS has reinitiated consultation on 10 fisheries, including the NE Multispecies FMP. NMFS has determined that allowing these fisheries to continue during the reinitiation period will not violate ESA sections 7(a)(2) and 7(d). Preliminary analysis indicates that multiple DPSs of Atlantic sturgeon may be affected by the continued operation of these fisheries. During the reinitiation period, NMFS will also review information on listed whales and sea turtles that has become available since consultations on these FMPs were last completed and will incorporate new information and analysis into the biological opinions as appropriate. NMFS has determined that the continued operation of the NE Multispecies FMP during the reinitiation period is not likely to jeopardize the continued existence of any Atlantic sturgeon DPS. This is based on the short time period encompassed by the reinitiation period and consequently, the scale of any interactions with Atlantic sturgeon that may occur during this period. NMFS will implement any appropriate measures outlined in the Biological Opinion to mitigate harm to Atlantic sturgeon. This may result in further modifications to existing groundfish fishing measures within the next year.

Impact Definitions for Table 10 below:

Regulated Groundfish Stocks, Non-groundfish species, Endangered and Other Protected Species	Positive = actions that increase stock size Negative = actions that decrease stock size
Habitat	Positive = actions that improve or reduce disturbance of habitat Negative = actions that degrade or increase disturbance of habitat

Human Communities	Positive = actions that increase revenue and well being of fishermen and/or associated businesses Negative = actions that decrease revenue and well being of fishermen and/or associated businesses
All VECs	Mixed = both positive and negative

**Table 11. Summary Effects of Past, Present, and Reasonably Foreseeable Future Actions on the VECs Identified for the Northwest Atlantic Trawl Fishery**

VEC	Past Actions	Present Actions	Reasonably Foreseeable Future Actions	Combined Effects of Past, Present, Future Actions
Target Species	<b>Mixed</b> Combined effects of past actions have decreased effort, improved habitat protection, and implemented rebuilding plans when necessary. However, some stocks remain at low biomass levels.	<b>Positive</b> Current regulations continue to manage for sustainable stocks and have increased biomass for most species.	<b>Positive</b> Future actions are anticipated to continue rebuilding and strive to maintain sustainable stocks.	<b>Short-term Negative</b> Several stocks are currently overfished, have overfishing occurring, or both. <b>Long-Term Positive</b> Stocks are being managed to attain rebuilt status.
Non-target Species	<b>Positive</b> Combined effects of past actions have decreased effort and improved habitat protection	<b>Positive</b> Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species	<b>Positive</b> Future actions are anticipated to continue rebuilding stocks, thus limiting the take of discards/bycatch	<b>Short-term Negative</b> Several stocks are currently overfished, have overfishing occurring, or both. <b>Long-Term Positive</b> Continued management of targeted stocks will also control incidental catch/bycatch.
Endangered and Other Protected Species	<b>Positive</b> Elimination of U.S. sturgeon fishery and reduced amount of effort has reduced interactions with protected resources.	<b>Positive</b> Current operations do not result in many interactions with protected species. Existing regulations continue to control effort, thus reducing opportunities for interactions.	<b>Positive</b> Continuation of current regulations and decreasing trends in fishing effort should keep interactions to a minimum	<b>Positive</b> Continued effort controls along with past regulations and location of fishing activity will likely help keep protected species interactions to a minimum.
Habitat	<b>Mixed</b> 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	<b>Positive</b> Effort reductions have had positive effect. VME measures and establishment of “footprint” should maintain or minimize future impacts.	<b>Mixed</b> Future regulations will likely control effort and thus habitat impacts but as stocks improve, effort will likely increase, particularly into areas beyond the existing footprint.	<b>Mixed</b> 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	<b>Mixed</b> Historic U.S. participation in NRA declined as vessels concentrated effort on domestic fisheries, reducing fishing activity and associated costs, but also time away from family.	<b>Positive</b> Efforts to reinstate U.S. participation in the NRA increases fishing opportunities and associated revenue. Long separations may have minor negative effect on communities.	<b>Positive</b> Successful operations in 2012 may lead to increased participation by other U.S. vessels, increasing fishing opportunities and revenue to vessels and surrounding communities.	<b>Positive</b> Additional fishing opportunities should provide much needed additional revenue to vessels and supporting industries.

## Baseline Conditions for Resources and Human Communities

For the purposes of a cumulative effects assessment, the baseline conditions for resources and human communities is considered the present condition of the VECs (described in Section 4.0), plus the combined effects of the past, present, and reasonably foreseeable future actions. The following table (Table 11) summarizes the added effects of the condition of the VECs and the sum effect of the past, present and reasonably foreseeable future actions. The resulting CEA baseline for each VEC is exhibited in the last column (shaded). In general, straightforward quantitative metrics of the baseline conditions are only available for the managed resources, non-target species, and protected resources. The conditions of the habitat and human communities VECs are complex and varied.

**Table 12. Added Effects on the Condition of the VECs and the Sum Effect of the Past, Present, and Reasonably Foreseeable Future Actions**

Valued Ecosystem Component	Cumulative Effects Assessment Baseline Condition
Target Species	<b>Negative</b> – Short term overharvesting in the past contributed to several stocks being overfished or where overfishing is occurring; <b>Positive</b> – Long term regulatory actions taken over time have reduced fishing effort and with the addition of Amendment 16, stocks are expected to rebuild in the future
Other Species	<b>Positive</b> – Although prior groundfish management measures likely contributed to redirecting effort onto non-groundfish species, as groundfish rebuild this pressure should lessen and all of these species are also managed through their own FMP.
Endangered and other protected species	<b>Positive</b> – Reduced gear encounters through effort reductions and additional management actions taken under the ESA and MMPA.
Habitat, including non-fishing effects	<b>Mixed</b> - Reduced habitat disturbance by fishing gear but impacts from non-fishing actions, such as global warming, could increase and have a negative impact.
Human Communities	<b>Negative</b> – Short term lower revenues would continue until stocks are sustainable. <b>Positive</b> – Long term sustainable resources should support viable communities and economies.

### 5.7.3 Cumulative Impacts on Target Species

As found in the cumulative effects analysis for FW 47 to the FMP (NEFMC 2012), the long-term trend for target and non-target stocks has been positive for cumulative impacts. 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. In the case of GOM cod, effort reductions have yielded positive impacts in that this stock continues to grow, though more slowly than initially thought, as shown in the most recent benchmark assessment (NEFSC, 2012).

The purpose of this action is to authorize the issuance of permits under the HSFCA in order to allow U.S. vessels to participate in the Northwest Atlantic trawl fishery governed by NAFO.

This action is not expected to have a significant cumulative impact on target or non-target species since U.S. fishing vessels will be fishing under, and constrained by, an existing quota authorized by NAFO, which is updated on an annual basis based on the best scientific advice. Additionally, all U.S. vessels will be subject to NAFO's daily catch reporting requirements, allowing NMFS to closely monitor quotas available to U.S. vessels and terminate fishing activities to ensure that quotas are not exceeded.

Overall fishing effort (number of vessels) in the NRA may increase as a result of this action, with up to 10 new vessels participating in NAFO's Northwest Atlantic trawl fishery mainly targeting yellowtail flounder. This increase in fishing effort could increase the incidence of bycatch. However, the number of vessels and the number of days present in the NRA has been steadily declining since 2004 (Figure 13). Therefore, the addition of a small number of U.S. vessels fishing under a limited quota will likely result in little to no increase in total fishing effort compared to that seen in recent years.

All U.S. vessels issued HSFCA permits under this action would be required to abide by all applicable NAFO bycatch provisions. NAFO allows a bycatch allowance of American plaice as a percentage of a Contracting Party's yellowtail flounder allocation. Therefore, any impact of additional fishing effort by U.S. vessels will be mitigated by NAFO's existing bycatch provisions. Although these bycatch provisions have been recently relaxed for American plaice, and may be relaxed further in the near future, these changes have been made in accordance with the best scientific advice in a manner intended not to impact the rebuilding of American plaice.

The cumulative impact from non-fishing activities is not likely to be significant since the only such activities that would affect this action are those associated with oil platforms and any no-fishing zones surrounding them. As previously mentioned, there are currently three oil platforms on the southeastern tail of the Grand Bank, with one additional platform scheduled to begin construction in 2012. All three existing platforms are located within the Canadian EEZ, but some of their exploration licenses extend beyond the 200-mile limit. Thus, although U.S. vessels may currently not be impacted by no-fishing zones surrounding these oil platforms, they may be in the future. Any positive impacts to species managed by NAFO resulting from any no-fishing zones are expected to be localized and minimal in nature.

Therefore, the combined impact of past, present, future actions with the proposed action would continue the sustainable harvest of regulated species and would not be expected to result in any significant cumulative effects.

#### 5.7.4 Cumulative Impacts on 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 7.6.5 of Framework 47, 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. Given the information available

from NAFO on known interactions between bottom trawl gear and protected species (listed marine mammals and sea turtles), this action is not expected to have a cumulative impact on such protected species due to the high unlikelihood of such interactions occurring in this region. Although there is documentation of sturgeon catch within the NAFO Convention Area, available information is not sufficient to accurately determine whether any Atlantic sturgeon from one or more of the five DPSs listed under the ESA would be affected by this proposed action within the NRA. The only documented sturgeon catch (no species was identified) within the NAFO Convention Area that can be attributed to a particular area emanated from well within the Canadian EEZ at the mouth of the St. Lawrence river and far removed from any current or future operations within the NRA. It is highly unlikely that any sturgeon would be caught as part of this proposed action because expected fishing operations would occur in areas in which Atlantic sturgeon are unlikely to occur (deep water, far offshore, away from the mouths of rivers). Thus, even though this action may result in a slight increase in fishing activity in the NRA, this increased activity is not expected to increase the likelihood of interactions taking place between listed marine mammals, sea turtles, or Atlantic sturgeon and bottom trawl gear. Therefore, this action, in combination with past, present, and reasonably foreseeable future actions, would not be expected to result in any significant cumulative effects.

#### 5.7.5 Cumulative impacts on habitat

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. 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.

#### 5.7.6 Cumulative impacts on communities

Past 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 Amendment 16 rebuilding plans. Current management measures will maintain effort and catch limit controls, which together with non-fishing impacts such as rising fuel costs have had significant negative short term economic impacts on human communities. Despite potential long separations from friends and family, the proposed action would likely have a positive impact on communities in that it will provide additional fishing opportunities to vessels owners, operators, and crew than would otherwise be available. However, the degree of this positive impact is expected to be minimal given the relatively small amount of quota available, and the

high operating costs associated with prosecuting this fishery. Regardless of the degree of impact, this action is particularly important in light of past and likely future actions that have reduced or will reduce the ability of vessels to participate in the Northeast multispecies fishery by further decreasing DAS allocations, limiting quota availability, revising or expanding establishing closed areas, or other appropriate measures. Therefore, the cumulative impact of this action in conjunction with other past, present and reasonably future actions would likely do little to offset the trend of significant negative impacts on communities until future stock rebuilding occurs.

#### 5.7.7 Summary of cumulative effects

This action, to issue HSFCA permits to U.S. vessels authorizing them to participate in NAFO's Northwest Atlantic trawl fishery, would not result in any significant cumulative impacts on yellowtail flounder (the primary target species), non-target species, habitat, protected species, or communities. This action may result in a slight increase in fishing effort within the NRA, but because fishing effort has been steadily declining in this region, the cumulative impact of this additional effort in the context of past, present, and future actions is expected to be negligible. Conversely, this action is expected to have a slightly positive cumulative impact to fishing communities since it provides additional fishing opportunities to U.S. vessels that have been impacted by past, present, and future actions in the Northeast multispecies fishery.

#### 6.0 Finding of No Significant Impact (FONSI) Statement

National Oceanic and Atmospheric Administration Order (NAO) 216-6 (revised May 20, 1999) provides nine criteria for determining the significance of the impacts of a final fishery management action. These criteria are discussed below:

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

The primary target species for the Northwest Atlantic trawl fishery is yellowtail flounder, although other target species such as 3M redfish, Sub-Areas 3 and 4 *Illex* squid, and 3L shrimp may also be pursued. Based on the most recent scientific advice, the yellowtail flounder stock in NAFO Divisions 3LNO is well above  $B_{MSY}$ , and is estimated to continue growing as discussed in Section 4.1.1. Biomass of Division 3M redfish has been steadily increasing since 2000, despite a recent decrease in 2009 and 2010. *Illex* squid in Sub-Areas 3 and 4 remain in a low state of productivity, despite minimal fishing pressure being exerted in recent years. The biomass of Division 3L shrimp remains above  $B_{LIM}$ , but has been declining recently. Vessels issued HSFCA permits under the proposed action would be required to comply with NAFO VMS and reporting requirements, as well as any closures of any directed fishery if the U.S. allocations of any stock is projected to be harvested. As noted in Section 2.0, the U.S. would be able to access up to 1,500 mt of yellowtail flounder quota from Canada for the next 10 years, beginning in 2009. Although, U.S. vessels are being transferred quota that is currently not being used by Canada, this action is only expected to result in minimal additional effort beyond that already occurring in the fishery due to the limited amount of quota being transferred, and the limited number of vessels (no more than 10) expected to harvest this quota. Thus, because the yellowtail flounder stock in NAFO Divisions 3LNO, redfish in Division 3M, and shrimp in Division 3L are each in a healthy condition, and because U.S. vessels will be fishing under a limited quota allocation

specified annually based on the best available scientific information, this action is not expected to jeopardize the sustainability of any target species.

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

Vessels issued HSFCA permits to participate in the Northwest Atlantic trawl fishery will not only be subject to a U.S. quota allocation of yellowtail flounder, but also to a bycatch limit of American plaice of 225 mt (15 percent of the U.S. yellowtail flounder quota), along with “others” quotas of species not allocated to the U.S. Thus, if the American plaice bycatch limit is projected to be reached before the yellowtail flounder quota, the U.S. yellowtail flounder fishery in NAFO Divisions 3LNO will be closed. Furthermore, U.S. vessels would be able to fish for and land any of the “others’ quotas for various species. Once these quotas are projected to be harvested, directed fishing on those stocks will be closed by NAFO. Finally, all U.S. vessels that participate in the Northwest Atlantic trawl fishery will be subject to NAFO’s restrictive bycatch provisions for other stocks. Given the American plaice bycatch limit on the yellowtail flounder fishery, and NAFO’s existing bycatch provisions, the proposed action not expected to jeopardize the sustainability of any non-target species.

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

The vessels that would be issued HSFCA permits under the proposed action to participate in the Northwest Atlantic trawl fishery would be operating in areas of the Grand Bank where trawl fishing activity already occurs (see Figures 1 and 12). As a result, the proposed action is not expected to increase impacts to ocean and coastal habitats and/or EFH beyond those already occurring in the fishery. Furthermore, NAFO has implemented measures to protect VMEs to comply with UNGA Resolution 61/105, such as steps vessels must take if they encounter specific VME elements above a certain threshold. Thus, the proposed action is not expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act.

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

The proposed action would not create a safety or public health concern. The proposed action would simply allow U.S. vessels to be issued permits under the HSFCA so that they can participate in the Northwest Atlantic trawl fishery governed under NAFO. While this entails fishing far from U.S. waters, the vessels would be required to comply with all existing U.S. safety requirements and pass a U.S. Coast Guard fishing vessel safety inspection prior to fishing within the NRA.

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

The fishing activities that would be authorized by the proposed action are not expected to adversely affect endangered or threatened species, marine mammals, or the critical habitat of these species. Although some endangered or threatened species and marine mammals are known

to occur in the area, the likelihood of interaction between these species and bottom trawl gear in the NRA based on NAFO observer data and information submitted by Contracting Parties is minimal. In fact, other than one known interaction between a blue whale and a large factory trawl vessel in 2006, and seven unclassified sturgeon interactions documented only within the Canadian EEZ, there are no known interactions between this gear type and protected species or marine mammals in the NRA. Although the unclassified sturgeon catch was recorded within the NAFO Convention Area, because expected vessel operations under this proposed action would occur in areas where sturgeon, particularly Atlantic sturgeon DPSs listed as threatened or endangered under the ESA, are not known to occur (depths approaching 200m in offshore waters far from river mouths), it is unlikely that the proposed action would have more than a negligible impact on sturgeon.

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)?*

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. As stated previously, the proposed action would authorize U.S. vessels to fish primarily for yellowtail flounder in NAFO Divisions 3LNO through the issuance of permits under the HSFCFA. Due to the distance from U.S. waters and the relatively small amount of yellowtail flounder quota transferred to the U.S. by Canada (in comparison to the total amount allocated) and quota for other species allocated or available to U.S. vessels, it is expected that no more than 10 vessels will participate in this fishery. In addition, vessels will be subject to closure of the directed fishing operations once the yellowtail flounder quota, the associated bycatch limit for American plaice, or available quotas for any other species is projected to be reached. In addition, vessels are also required to abide by the NCEMs when fishing in the NRA, which include bycatch mitigation measures and measures to protect VMEs.

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

There are no significant social or economic impacts, nor are there any significant natural or physical environmental effects expected to result from the proposed action (Section 5.0, Environmental Consequences). This action will positively affect those vessels, and their corresponding communities, that are able to participate in the NAFO yellowtail flounder fishery since this fishery presents a new fishing opportunity. Engaging in this fishery could result in additional fishing revenues approaching \$6.6 million in 2012 if all available quotas are harvested by participating U.S. vessels. Given the high operating costs associated with participating in this fishery, the overall economic impact is expected to be minimal. In fact, the social impacts associated with participating in this fishery may be greater than the overall economic effect if this fishery enables vessels to continue fishing when they otherwise would be docked, and vessels owners to explore new markets and fishing opportunities.

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

The effects of the proposed action on the human environment are not expected to be highly controversial, as they are based on the best and most recent scientific information available.



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

The area impacted by this action is the Grand Bank off the southeastern edge of Newfoundland. The only unique areas on the Grand Bank would be areas associated with VME under NAFO. As noted above, several areas of known concentrations of VME are already closed to bottom fishing activities within the area currently fished by participating vessels. In addition, the NCEM includes protocols to identify and avoid additional concentrations of VME indicator species once detected within or outside of the existing NAFO Footprint (see Figure 12). Further research is being conducted on areas in which VMEs are found to determine if they are indeed unique and should be closed to bottom fishing activities. Given the limited scope and magnitude of this action in relation to bottom fishing activities already occurring on the Grand Bank, this action is not expected to 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?*

This action is not expected to have substantial effects on the human environment due to its limited scope and magnitude. However, due to the uncertainty concerning where vessel owners will land their catch (U.S. or Canada), how much they will receive for the catch, and overhead costs, it is difficult to fully assess the potential economic effect of this action. As noted in Section 5.5, there appears to be a large price differential for several species between the U.S. and Canada, with the price of these species driven by the market, causing it to vary widely either upward or downward. Additional uncertainty is known to occur within stock assessments. However, the risks associated with stock assessment uncertainty are documented and being investigated to the extent that available data allow.

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

The proposed action builds upon an EA developed in November 2009 to issue HSFCA permits for up to 10 vessels to fish for NAFO-managed species available to U.S. vessels within the NRA. That analysis concluded that the impacts of such permit issuance would be insignificant to the human environment. This action is identical to that previous action, with the exception that it supplements the November 2009 EA to provide updated information on stock status and the status of species listed under the ESA. The addition of this new information does not lead to significant impacts on the human environment. For the reasons stated in Sections 5.1 through 5.6, it is not expected that the proposed action, in conjunction with the previous action, would result in significant impacts to the human environment. In addition, for the reasons stated in Section 5.7, this action, when combined with other past, present, or reasonably foreseeable future actions, is not likely to have significant cumulative impacts.

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 historic resources?*

The proposed action is not likely to directly or indirectly affect objects listed in the National Register of Historic Places or cause significant impact to scientific, cultural or historical resources due to the spatial remoteness of the proposed activity relative to listed sites. The fishing activities that would be authorized under the proposed action would take place in international waters off the southern tail of the Grand Bank, where no listed sites occur.

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

The proposed action would authorize U.S. vessels to participate in an ongoing NAFO managed fishery in an area that is already subject to bottom fishing activity. Given the limited number of vessels expected to participate in this fishery and the limited amount of quota available to U.S. vessels, the proposed action is not expected to have a substantial effect on overall fishing effort in the area. As a result, the proposed action is not expected to result in the introduction or spread of non-indigenous species.

In 2002, an invasive colonial sea squirt (*Didemnum sp.*) was observed on Georges Bank. The tunicate occurs on pebble gravel habitat, and does not occur on moving sand. NMFS has surveyed the area and is monitoring the growth. At this time, there is no evidence that fishing spreads this species more than it would spread naturally, however, the role of fishing gear in the spread of invasive tunicates should be regularly evaluated and monitored. There is currently no evidence that this invasive tunicate occurs on the Grand Bank where U.S. vessels will be fishing.

*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?*

The proposed action is not likely to establish a precedent for future action with significant effects, and it does not represent a decision in principle about future consideration. This action is being taken to authorize U.S. vessels to participate in a bottom trawl fishery on the High Seas that is regulated by an international body (NAFO). There are currently no implementing regulations for U.S. participation in this fishery under the Magnuson-Stevens Fishery Conservation and Management Act. However, those regulations will be formulated as this fishery develops and evolves, providing NMFS with the flexibility to address issues in the regulatory context as they arise. The impact of any future regulations governing the NAFO fishery will be analyzed with respect their significance in the process of developing and implementing them.

*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?*

The proposed action is not reasonably expected to threaten a violation of Federal, State or local laws or requirements imposed for the protection of the environment. This action does not propose any changes that would provide incentives for environmental laws to be broken.

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

Cumulative effects on target and non-target species related to the proposed action are discussed in Section 5.7 of this document. Based on that discussion, the cumulative effects are not expected to be significant.

**FONSI Statement**

In view of the analysis presented in this document, it is hereby determined that the proposed action will not significantly impact the quality of the human environment, as described above. The impacts and alternatives in this document were analyzed with regard to both context and intensity, and are deemed not to be significant. Accordingly, the preparation of an Environmental Impact Statement (EIS) or Supplemental EIS for the proposed action is not necessary.

---

**NMFS, Northeast Regional Administrator**

**Date**

## 7.0 References

- Atlantic States Marine Fisheries Commission Technical Committee (ASMFC TC). 2007. Special Report to the Atlantic Sturgeon Management Board: Estimation of Atlantic sturgeon bycatch in coastal Atlantic commercial fisheries of New England and the Mid-Atlantic. August 2007. 95 pp.
- Atlantic Sturgeon Status Review Team (ASSRT). 2007. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). National Marine Fisheries Service. February 23, 2007. 188 pp.
- Best, P.B., J. L. Bannister, R.L. Brownell, Jr., and G.P. Donovan (eds.). 2001. Right whales: worldwide status. *J. Cetacean Res. Manage.* (Special Issue) 2. 309 pages.
- Bode, Scott. 2012. Pier Fish Company. Personal communication on April 12, 2012.
- Boston Harbor Association (BHA). 2004. Working Port Advocacy and Education. Available at: [http://www.tbha.org/programs\\_workingport.htm](http://www.tbha.org/programs_workingport.htm).
- Braun-McNeill, J., and S.P. Epperly. 2004. Spatial and temporal distribution of sea turtles in the western North Atlantic and the U.S. Gulf of Mexico from Marine Recreational Fishery Statistics Survey (MRFSS). *Mar. Fish. Rev.* 64(4): 50-56.
- Brown, M.W., O.C. Nichols, M.K. Marx, and J.N. Ciano. 2002. Surveillance of North Atlantic right whales in Cape Cod Bay and adjacent waters--2002. Final Report to the Division of Marine Fisheries, Commonwealth of Massachusetts. 29 pages.
- Clapham, P.J., S.B. Young, and R.L. Brownell. 1999. Baleen whales: Conservation issues and the status of the most endangered populations. *Mammal Rev.* 29(1): 35-60.
- Conant, T.A., P.H. Dutton, T. Eguchi, S.P. Epperly, C.C. Fahy, M.H. Godfrey, S.L. MacPherson, E.E. Possardt, B.A. Schroeder, J.A. Seminoff, M.L. Snover, C.M. Upite, and B.E. Witherington. 2009. Loggerhead sea turtle (*Caretta caretta*) 2009 status review under the U.S. Endangered Species Act. Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 222 pages.
- Canadian Department of Fisheries and Oceans (DFO). 2012. Landing and Landed Value by Species from Newfoundland and Laborador Region. Preliminary landings data available at: [http://www.nfl.dfo-mpo.gc.ca/publications/reports\\_rapports/Land\\_All\\_Vessels\\_Debarquer\\_Tous\\_Les\\_Navires\\_2010\\_eng.htm](http://www.nfl.dfo-mpo.gc.ca/publications/reports_rapports/Land_All_Vessels_Debarquer_Tous_Les_Navires_2010_eng.htm). Accessed on April 12, 2012.
- Dadswell, M. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. *Fisheries* 31: 218-229.

- Dovel, W. L. and T. J. Berggren. 1983. Atlantic sturgeon of the Hudson River estuary, New York. *New York Fish and Game Journal* 30: 140-172.
- Dunton, K.J., A. Jordaan, K.A. McKown, D.O. Conover, and M.G. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*) within the Northwest Atlantic Ocean determined from five fishery-independent surveys. *Fish. Bull.* 108:450-465.
- Hall-Arber, Madeleine, Christopher Dyer, John Poggie, James McNally and Renee Gagne. 2001. Fishing Communities and Fishing Dependency in the Northeast Region of the United States. MARFIN Project Final Report to National Marine Fisheries Service.
- Hirth, H.F. 1997. Synopsis of the biological data of the green turtle, *Chelonia mydas* (Linnaeus 1758). USFWS Biological Report 97(1). 120 pages.
- Holland, B.F., Jr., and G.F. Yelverton. 1973. Distribution and biological studies of anadromous fishes offshore North Carolina. Division of Commercial and Sports Fisheries, North Carolina Dept. of Natural and Economic Resources, Special Scientific Report No. 24. 130 pp.
- International Whaling Commission (IWC). 2001. Report of the workshop on the comprehensive assessment of right whales: A worldwide comparison. Reports of the International Whaling Commission. Special Issue 2.
- James, M.C., R.A. Myers, and C.A. Ottenmeyer. 2005. Behavior of leatherback sea turtles, *Dermochelys coriacea*, during the migratory cycle. *Proc. R. Soc. B*, 272: 1547-1555.
- Johnson, A., G. Salvador, J. Kenney, J. Robbins, S. Kraus, S. Landry, and P. Clapham. 2005. Fishing gear involved in entanglements of right and humpback whales. *Mar. Mamm. Sci.* 21(4): 635-645.
- Kahnle, A.W., K.A. Hattala, and K.A. McKown. 2007. Status of Atlantic sturgeon of the Hudson River Estuary, New York, USA. *American Fisheries Society Symposium* 56:347-363.
- Kahnle, A.W., K.A. Hattala, K. McKown. 2007. Status of Atlantic sturgeon of the Hudson River estuary, New York, USA. In J. Munro, D. Hatin, K. McKown, J. Hightower, K. Sulak, A. Kahnle, and F. Caron (editors). Proceedings of the symposium on anadromous sturgeon: Status and trend, anthropogenic impact, and essential habitat. American Fisheries Society, Bethesda, Maryland.
- Katona, S.K., V. Rough, and D.T. Richardson. 1993. A field guide to whales, porpoises, and seals from Cape Cod to Newfoundland. Smithsonian Institution Press, Washington, D.C. 316 pages.
- Keinath, J.A., J.A. Musick, and R.A. Byles. 1987. Aspects of the biology of Virginias sea turtles: 1979-1986. *Virginia J. Sci.* 38(4): 329-336.

- Kenney, R.D. 2002. North Atlantic, North Pacific, and Southern hemisphere right whales. *In*: W.F.Perrin, B. Wursig, and J.G.M. Thewissen (eds.), *Encyclopedia of Marine Mammals*. Academic Press, CA. pp. 806-813.
- Kulka, D.W. 1991. A description of fisheries in the vicinity of Significant Oil Discovery Areas off Newfoundland. Canadian Technical Report Fisheries Aquatic Sciences No. 1787. 126 pages.
- Kulka, D.W. 2009. Spatial Analysis of Plaice and Cod Bycatch in the Yellowtail Flounder Fishery on the Grand Bank. World Wildlife Fund Report, WWF-Canada. 37 pages.
- Kynard, B. and M. Horgan. 2002. Ontogenetic behavior and migration of Atlantic sturgeon, *Acipenser oxyrinchus oxyrinchus*, and shortnose sturgeon, *A. brevirostrum*, with notes on social behavior. *Environmental Behavior of Fishes* 63: 137-150.
- Laney, R.W., J.E. Hightower, B.R. Versak, M.F. Mangold, W.W. Cole Jr., and S.E. Winslow. 2007. Distribution, habitat use, and size of Atlantic sturgeon captured during cooperative winter tagging cruises, 1988-2006. In *Anadromous sturgeons: habitats, threats, and management* (J. Munro, D. Hatin, J.E. Hightower, K. McKown, K.J. Sulak, A.W. Kahnle, and F. Caron (eds.)), p. 167-182. *Am. Fish. Soc. Symp.* 56, Bethesda, MD.
- Morreale, S.J. and E.A. Standora. 1998. Early life stage ecology of sea turtles in northeastern U.S. waters. U.S. Dep. Commer. NOAA Tech. Mem. NMFS-SEFSC-413. 49 pages
- Morreale, S.J. and E.A. Standora. 2005. Western North Atlantic waters: Crucial developmental habitat for Kemp's ridley and loggerhead sea turtles. *Chel. Conserv. Biol.* 4(4): 872-882.
- Musick, J.A. and C.J. Limpus. 1997. Habitat utilization and migration in juvenile sea turtles. In: Lutz, P.L., and J.A. Musick, eds., *The Biology of Sea Turtles*. CRC Press, New York. pp. 137-164.
- NAFO. 1999. Incidental Catch Limits. FC Doc. 99/12. 1 page.
- NAFO. 2000. Proposal to amend the NAFO Conservation and Enforcement Measures Regarding Incidental Catch Limits. FC Doc. 00/15. 1 page.
- NAFO. 2006. Proposal on precautionary closure to four seamount areas based on the ecosystem approach to fisheries. FC Doc. 06/5. 2 pages.
- NAFO. 2006. Resolution to Reduce Sea Turtle Mortality in NAFO Fishing Operations. NAFO/FC Doc. 06/7. 2 pages.
- NAFO. 2006. Amendments to the Conservation and Enforcement Measures: Article 9-By-catch requirements. FC Doc. 06/11: 1-2.
- NAFO. 2007. Information on Sea Turtle Fisheries Interactions. NAFO/FC Working Paper 07/5 (Revised). 1 page.

- NAFO. 2007. Interim Measures to Prevent Significant Adverse Impacts on Vulnerable Marine Ecosystems. FC Doc. 07/18. 3 pages.
- NAFO. 2008a. New Chapter I bis of the NAFO Conservation and Enforcement Measures Bottom fisheries in the NAFO Regulatory Area. FC Doc. 08/3. 5 pages.
- NAFO. 2008b. Preliminary Assessment of the Risk of Significant Adverse Impact (SAI) of Fishing Activities in the NAFO Regulatory Area. FC Doc. 08/16. 11 pages.
- NAFO. 2008c. Report of the Fisheries Commission at the 30<sup>th</sup> Annual Meeting, 22-26 September 2008, Vigo, Spain. NAFO/FC Doc. 08/22. 86 pages.
- NAFO. 2009a. Delineation of Existing Bottom Fishing Areas in the NAFO Regulatory Area. NAFO/FC Working Paper 09/1 (Revised). 9 pages.
- NAFO. 2009b. Report of the Ad Hoc Working Group of Fishery Managers and Scientists on Vulnerable Marine Ecosystems (WGFMS), 19-20 March 2009, Vigo, Spain. NAFO/FC Doc. 09/2. 30 pages.
- NAFO. 2009c. NAFO Conservation and Enforcement Measures. NAFO/FC Doc. 09/01. 91 pages.
- NAFO. 2010. Update on Sea Turtle-Fisheries Interactions. NAFO/FC Working Paper 10/6 (revised). 5 pages.
- NAFO. 2011a. Report of the NAFO Scientific Council Meeting, 3-16 June 2011, Braunschweig, Germany. NAFO SCS Doc. 11/16. 236 pages.
- NAFO. 2011b. Report of the Fisheries Commission at the 33<sup>rd</sup> Annual Meeting, 19-23 September 2011, Halifax, Nova Scotia, Canada. NAFO/FC Doc. 11/38. 107 pages.
- New England Fishery Management Council (NEFMC). 2009. Final Amendment 16 to the Northeast Multispecies Fishery Management Plan Including a Final Supplemental Environmental Impact Statement and an Initial Regulatory Flexibility Analysis. Newburyport, MA. Available at: <http://www.nefmc.org/nemulti/index.html>.
- NEFMC. 2010. Framework Adjustment 45 to the Northeast Multispecies Fishery management Plan. New England Fishery Management Council, Newburyport, MA. 489 pages.
- NEFMC. 2012. Framework 47 to the Northeast Multispecies Fishery Management Plan. New England Fishery Management Council, Newburyport, MA. 334 pages.
- National Marine Fisheries Service (NMFS). 1991a. Final recovery plan for the humpback whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale Recovery Team for the national Marine Fisheries Service, Silver Spring, Maryland. 105 pp.

- NMFS. 1991b. Final recovery plan for the North Atlantic right whale (*Eubalaena glacialis*). Prepared by the Right Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 86 pp.
- NMFS. 1998. Unpublished. Draft recovery plans for the fin whale (*Balaenoptera physalus*) and sei whale (*Balaenoptera borealis*). Prepared by R.R. Reeves, G.K. Silber, and P.M. Payne for the National Marine Fisheries Service, Silver Spring, Maryland. July 1998.
- NMFS. 2005. Recovery Plan for the North Atlantic right whale (*Eubalaena glacialis*). National Marine Fisheries Service, Silver Spring, MD. 137 pages.
- NMFS Southeast Fisheries Science Center (SEFSC). 2001. Stock assessments of loggerhead and leatherback sea turtles and an assessment of the impact of the pelagic longline fishery on the loggerhead and leatherback sea turtles of the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-455. 343 pp.
- NMFS and U.S. Fish and Wildlife Service (USFWS). 1991a. Recovery plan for U.S. population of loggerhead turtle. National Marine Fisheries Service, Washington, D.C. 64 pages.
- NMFS and USFWS. 1991b. Recovery plan for U.S. population of Atlantic green turtle. National Marine Fisheries Service, Washington, D.C. 58 pages.
- NMFS and USFWS. 1992. Recovery plan for leatherback turtles in the U.S. Caribbean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, Washington, D.C. 65 pages.
- NMFS and USFWS. 1995. Status reviews for sea turtles listed under the Endangered Species Act of 1973. National Marine Fisheries Service, Silver Spring, Maryland. 139 pp.
- NMFS and USFWS. 2007a. Status reviews for sea turtles listed under the Endangered Species Act of 1973. National Marine Fisheries Service, Silver Spring, MD. 139 pages.
- NMFS and USFWS. 2007b. Green Sea Turtle (*Chelonia mydas*) 5 Year Review: Summary and Evaluation. National Marine Fisheries Service, Silver Spring, MD. 102 pages.
- NMFS and USFWS. 2007c. Kemp's Ridley Sea Turtle (*Lepidochelys kempii*) 5 Year Review: Summary and Evaluation. National Marine Fisheries Service, Silver Spring, MD. 50 pages.
- NMFS and USFWS. 2008. Recovery plan for the Northwest Atlantic population of the loggerhead turtle (*Caretta caretta*), Second revision. Washington, D.C.: National Marine Fisheries Service. 325 pp.
- Perry, S.L., D.P. DeMaster, and G.K. Silber. 1999. The great whales: History and status of six species listed as endangered under the U.S. Endangered Species Act of 1973. Mar. Fish. Rev. Special Edition. 61(1): 59-74.



- Schueller, P. and D. L. Peterson. 2006. Population status and spawning movements of Atlantic sturgeon in the Altamaha River, Georgia. Presentation to the 14th American Fisheries Society Southern Division Meeting, San Antonio, February 8-12th, 2006. Scott, W. B. and E. J. Crossman. 1973. Freshwater fishes of Canada. Fisheries Research Board of Canada Bulletin 184: 966 pp.
- Shoop, C.R. and R.D. Kenney. 1992. Seasonal distributions and abundance of loggerhead and leatherback sea turtles in waters of the northeastern United States. *Herpetol. Monogr.* 6: 43-67.
- Stein, A. B., K. D. Friedland, and M. Sutherland. 2004a. Atlantic sturgeon marine bycatch and mortality on the continental shelf of the Northeast United States. *North American Journal of Fisheries Management* 24: 171-183.
- Stein, A.B., K. D. Friedland, and M. Sutherland. 2004b. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. *Transaction of the American Fisheries Society* 133:527-537.
- Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan, and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. *Mar. Mamm. Sci.* 9: 309-315.
- Turtle Expert Working Group (TEWG). 1998. An assessment of the Kemp's ridley (*Lepidochelys kempii*) and loggerhead (*Caretta caretta*) sea turtle populations in the Western North Atlantic. NOAA Tech. Memo. NMFS-SEFSC-409. 96 pages.
- Turtle Expert Working Group (TEWG). 2000. Assessment update for the Kemp's ridley and loggerhead sea turtle populations in the western North Atlantic. U.S. Dep. Commer. NOAA Tech. Mem. NMFS-SEFSC-444. 115 pages.
- Turtle Expert Working Group (TEWG). 2007. An assessment of the leatherback turtle population in the Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-555, 116 pp.
- Turtle Expert Working Group (TEWG). 2009. An assessment of the loggerhead turtle population in the Western North Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-575:1-131.
- USFWS. 1997. Synopsis of the biological data on the green turtle, *Chelonia mydas* (Linnaeus 1758). Biological Report 97(1). U.S. Fish and Wildlife Service, Washington, D.C. 120 pages.
- USFWS and NMFS. 1992. Recovery plan for the Kemp's ridley sea turtle (*Lepidochelys kempii*). NMFS, St. Petersburg, Florida. 47 pages.

- Waldman, J. R., J. T. Hart, and I. I. Wirgin. 1996. Stock composition of the New York Bight Atlantic sturgeon fishery based on analysis of mitochondrial DNA. *Transactions of the American Fisheries Society* 125: 364-371.
- Waring, G.T., D.L. Palka, P.J. Clapham, S. Swartz, M. Rossman, T. Cole, L.J. Hansen, K.D. Bisack, K. Mullin, R.S. Wells, D.K. Odell, and N.B. Barros. 1999. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments - 1999. NOAA Tech. Memo. NMFS-NE-153. 187 pages.
- Waring, G.T., J. M. Quintal and C. P. Fairfield. 2002. U. S. Atlantic and Gulf of Mexico marine mammal stock assessments - 2002. NOAA Tech. Memo. NMFS-NE-169, 318 pp.
- Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley, Editors. 2006. (2nd edition) U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments-2005. NOAA Tech. Memo. NMFS-NE-194. 352 pages.
- Waring GT, Josephson E, Maze-Foley K, and Rosel PE, editors. 2009. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2009. NOAA Tech Memo NMFS NE 213; 528 p.
- Waring GT, Josephson E, Maze-Foley K, Rosel, PE, editors. 2011. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2010. NOAA Tech. Memo. NMFS NE 219; 598 p.
- Wiley, D.N., R.A. Asmutis, T.D. Pitchford, and D.P. Gannon. 1995. Stranding and mortality of humpback whales, *Megaptera novaengliae*, in the mid-Atlantic and southeast United States, 1985-1992. *Fish. Bull., U.S.* 93: 196-205.
- Wynne, K. and M. Schwartz. 1999. Guide to marine mammals and turtles of the U.S. Atlantic and Gulf of Mexico. Rhode Island Sea Grant, Narragansett. 115 pages.

## 8.0 List of Preparers and Persons Consulted

This document was prepared by the Northeast Regional Office (NERO) of NMFS in consultation with DFO, NAFO, the New England Fishery Management Council (NEFMC). Contributors include:

- Jennifer Anderson, NMFS NERO
- Daniel Caless, NMFS NERO
- Timothy Cardiasmenos, NMFS NERO
- Douglas Christel, NMFS NERO
- Tobey Curtis, NMFS NERO
- Jason Didden, Atlantic States Marine Fisheries Commission
- Gerry Gaipo, NMFS NERO
- Jerome Hermsen, Ph.D., NMFS
- Ellen Keane, NMFS NERO
- Cindy Kerr, NAFO
- David Kulka, DFO (retired)
- Kevin Madley, NMFS NERO
- Allison McHale, NMFS NERO
- Tom Nies, New England Fishery Management Council
- Tom Pat Scida, NMFS NERO
- Carrie Upite, NMFS NERO
- Ray Walsh, DFO

Primary point of contact to obtain copies of this Environmental Assessment:  
Daniel Morris, Acting Northeast Regional Administrator, NOAA Fisheries Service,  
55 Great Republic Drive, Gloucester, MA 01930.  
Phone: (978) 281-9300

high operating costs associated with prosecuting this fishery. Regardless of the degree of impact, this action is particularly important in light of past and likely future actions that have reduced or will reduce the ability of vessels to participate in the Northeast multispecies fishery by further decreasing DAS allocations, limiting quota availability, revising or expanding establishing closed areas, or other appropriate measures. Therefore, the cumulative impact of this action in conjunction with other past, present and reasonably future actions would likely do little to offset the trend of significant negative impacts on communities until future stock rebuilding occurs.

#### 5.7.7 Summary of cumulative effects

This action, to issue HSFCA permits to U.S. vessels authorizing them to participate in NAFO's Northwest Atlantic trawl fishery, would not result in any significant cumulative impacts on yellowtail flounder (the primary target species), non-target species, habitat, protected species, or communities. This action may result in a slight increase in fishing effort within the NRA, but because fishing effort has been steadily declining in this region, the cumulative impact of this additional effort in the context of past, present, and future actions is expected to be negligible. Conversely, this action is expected to have a slightly positive cumulative impact to fishing communities since it provides additional fishing opportunities to U.S. vessels that have been impacted by past, present, and future actions in the Northeast multispecies fishery.

### 6.0 Finding of No Significant Impact (FONSI) Statement

National Oceanic and Atmospheric Administration Order (NAO) 216-6 (revised May 20, 1999) provides nine criteria for determining the significance of the impacts of a final fishery management action. These criteria are discussed below:

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

The primary target species for the Northwest Atlantic trawl fishery is yellowtail flounder, although other target species such as 3M redfish, Sub-Areas 3 and 4 *Illex* squid, and 3L shrimp may also be pursued. Based on the most recent scientific advice, the yellowtail flounder stock in NAFO Divisions 3LNO is well above  $B_{MSY}$ , and is estimated to continue growing as discussed in Section 4.1.1. Biomass of Division 3M redfish has been steadily increasing since 2000, despite a recent decrease in 2009 and 2010. *Illex* squid in Sub-Areas 3 and 4 remain in a low state of productivity, despite minimal fishing pressure being exerted in recent years. The biomass of Division 3L shrimp remains above  $B_{LIM}$ , but has been declining recently. Vessels issued HSFCA permits under the proposed action would be required to comply with NAFO VMS and reporting requirements, as well as any closures of any directed fishery if the U.S. allocations of any stock is projected to be harvested. As noted in Section 2.0, the U.S. would be able to access up to 1,500 mt of yellowtail flounder quota from Canada for the next 10 years, beginning in 2009. Although, U.S. vessels are being transferred quota that is currently not being used by Canada, this action is only expected to result in minimal additional effort beyond that already occurring in the fishery due to the limited amount of quota being transferred, and the limited number of vessels (no more than 10) expected to harvest this quota. Thus, because the yellowtail flounder stock in NAFO Divisions 3LNO, redfish in Division 3M, and shrimp in Division 3L are each in a healthy condition, and because U.S. vessels will be fishing under a limited quota allocation

specified annually based on the best available scientific information, this action is not expected to jeopardize the sustainability of any target species.

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

Vessels issued HSFCA permits to participate in the Northwest Atlantic trawl fishery will not only be subject to a U.S. quota allocation of yellowtail flounder, but also to a bycatch limit of American plaice of 225 mt (15 percent of the U.S. yellowtail flounder quota), along with “others” quotas of species not allocated to the U.S. Thus, if the American plaice bycatch limit is projected to be reached before the yellowtail flounder quota, the U.S. yellowtail flounder fishery in NAFO Divisions 3LNO will be closed. Furthermore, U.S. vessels would be able to fish for and land any of the “others” quotas for various species. Once these quotas are projected to be harvested, directed fishing on those stocks will be closed by NAFO. Finally, all U.S. vessels that participate in the Northwest Atlantic trawl fishery will be subject to NAFO’s restrictive bycatch provisions for other stocks. Given the American plaice bycatch limit on the yellowtail flounder fishery, and NAFO’s existing bycatch provisions, the proposed action not expected to jeopardize the sustainability of any non-target species.

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

The vessels that would be issued HSFCA permits under the proposed action to participate in the Northwest Atlantic trawl fishery would be operating in areas of the Grand Bank where trawl fishing activity already occurs (see Figures 1 and 12). As a result, the proposed action is not expected to increase impacts to ocean and coastal habitats and/or EFH beyond those already occurring in the fishery. Furthermore, NAFO has implemented measures to protect VMEs to comply with UNGA Resolution 61/105, such as steps vessels must take if they encounter specific VME elements above a certain threshold. Thus, the proposed action is not expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act.

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

The proposed action would not create a safety or public health concern. The proposed action would simply allow U.S. vessels to be issued permits under the HSFCA so that they can participate in the Northwest Atlantic trawl fishery governed under NAFO. While this entails fishing far from U.S. waters, the vessels would be required to comply with all existing U.S. safety requirements and pass a U.S. Coast Guard fishing vessel safety inspection prior to fishing within the NRA.

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

The fishing activities that would be authorized by the proposed action are not expected to adversely affect endangered or threatened species, marine mammals, or the critical habitat of these species. Although some endangered or threatened species and marine mammals are known

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

The area impacted by this action is the Grand Bank off the southeastern edge of Newfoundland. The only unique areas on the Grand Bank would be areas associated with VME under NAFO. As noted above, several areas of known concentrations of VME are already closed to bottom fishing activities within the area currently fished by participating vessels. In addition, the NCEM includes protocols to identify and avoid additional concentrations of VME indicator species once detected within or outside of the existing NAFO Footprint (see Figure 12). Further research is being conducted on areas in which VMEs are found to determine if they are indeed unique and should be closed to bottom fishing activities. Given the limited scope and magnitude of this action in relation to bottom fishing activities already occurring on the Grand Bank, this action is not expected to 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?*

This action is not expected to have substantial effects on the human environment due to its limited scope and magnitude. However, due to the uncertainty concerning where vessel owners will land their catch (U.S. or Canada), how much they will receive for the catch, and overhead costs, it is difficult to fully assess the potential economic effect of this action. As noted in Section 5.5, there appears to be a large price differential for several species between the U.S. and Canada, with the price of these species driven by the market, causing it to vary widely either upward or downward. Additional uncertainty is known to occur within stock assessments. However, the risks associated with stock assessment uncertainty are documented and being investigated to the extent that available data allow.

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

The proposed action builds upon an EA developed in November 2009 to issue HSFCA permits for up to 10 vessels to fish for NAFO-managed species available to U.S. vessels within the NRA. That analysis concluded that the impacts of such permit issuance would be insignificant to the human environment. This action is identical to that previous action, with the exception that it supplements the November 2009 EA to provide updated information on stock status and the status of species listed under the ESA. The addition of this new information does not lead to significant impacts on the human environment. For the reasons stated in Sections 5.1 through 5.6, it is not expected that the proposed action, in conjunction with the previous action, would result in significant impacts to the human environment. In addition, for the reasons stated in Section 5.7, this action, when combined with other past, present, or reasonably foreseeable future actions, is not likely to have significant cumulative impacts.

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 historic resources?*

to occur in the area, the likelihood of interaction between these species and bottom trawl gear in the NRA based on NAFO observer data and information submitted by Contracting Parties is minimal. In fact, other than one known interaction between a blue whale and a large factory trawl vessel in 2006, and seven unclassified sturgeon interactions documented only within the Canadian EEZ, there are no known interactions between this gear type and protected species or marine mammals in the NRA. Although the unclassified sturgeon catch was recorded within the NAFO Convention Area, because expected vessel operations under this proposed action would occur in areas where sturgeon, particularly Atlantic sturgeon DPSs listed as threatened or endangered under the ESA, are not known to occur (depths approaching 200m in offshore waters far from river mouths), it is unlikely that the proposed action would have more than a negligible impact on sturgeon.

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)?*

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. As stated previously, the proposed action would authorize U.S. vessels to fish primarily for yellowtail flounder in NAFO Divisions 3LNO through the issuance of permits under the HSFCA. Due to the distance from U.S. waters and the relatively small amount of yellowtail flounder quota transferred to the U.S. by Canada (in comparison to the total amount allocated) and quota for other species allocated or available to U.S. vessels, it is expected that no more than 10 vessels will participate in this fishery. In addition, vessels will be subject to closure of the directed fishing operations once the yellowtail flounder quota, the associated bycatch limit for American plaice, or available quotas for any other species is projected to be reached. In addition, vessels are also required to abide by the NCEMs when fishing in the NRA, which include bycatch mitigation measures and measures to protect VMEs.

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

There are no significant social or economic impacts, nor are there any significant natural or physical environmental effects expected to result from the proposed action (Section 5.0, Environmental Consequences). This action will positively affect those vessels, and their corresponding communities, that are able to participate in the NAFO yellowtail flounder fishery since this fishery presents a new fishing opportunity. Engaging in this fishery could result in additional fishing revenues approaching \$6.6 million in 2012 if all available quotas are harvested by participating U.S. vessels. Given the high operating costs associated with participating in this fishery, the overall economic impact is expected to be minimal. In fact, the social impacts associated with participating in this fishery may be greater than the overall economic effect if this fishery enables vessels to continue fishing when they otherwise would be docked, and vessels owners to explore new markets and fishing opportunities.

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

The effects of the proposed action on the human environment are not expected to be highly controversial, as they are based on the best and most recent scientific information available.

The proposed action is not likely to directly or indirectly affect objects listed in the National Register of Historic Places or cause significant impact to scientific, cultural or historical resources due to the spatial remoteness of the proposed activity relative to listed sites. The fishing activities that would be authorized under the proposed action would take place in international waters off the southern tail of the Grand Bank, where no listed sites occur.

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

The proposed action would authorize U.S. vessels to participate in an ongoing NAFO managed fishery in an area that is already subject to bottom fishing activity. Given the limited number of vessels expected to participate in this fishery and the limited amount of quota available to U.S. vessels, the proposed action is not expected to have a substantial effect on overall fishing effort in the area. As a result, the proposed action is not expected to result in the introduction or spread of non-indigenous species.

In 2002, an invasive colonial sea squirt (*Didemnum sp.*) was observed on Georges Bank. The tunicate occurs on pebble gravel habitat, and does not occur on moving sand. NMFS has surveyed the area and is monitoring the growth. At this time, there is no evidence that fishing spreads this species more than it would spread naturally, however, the role of fishing gear in the spread of invasive tunicates should be regularly evaluated and monitored. There is currently no evidence that this invasive tunicate occurs on the Grand Bank where U.S. vessels will be fishing.

*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?*

The proposed action is not likely to establish a precedent for future action with significant effects, and it does not represent a decision in principle about future consideration. This action is being taken to authorize U.S. vessels to participate in a bottom trawl fishery on the High Seas that is regulated by an international body (NAFO). There are currently no implementing regulations for U.S. participation in this fishery under the Magnuson-Stevens Fishery Conservation and Management Act. However, those regulations will be formulated as this fishery develops and evolves, providing NMFS with the flexibility to address issues in the regulatory context as they arise. The impact of any future regulations governing the NAFO fishery will be analyzed with respect their significance in the process of developing and implementing them.

*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?*

The proposed action is not reasonably expected to threaten a violation of Federal, State or local laws or requirements imposed for the protection of the environment. This action does not propose any changes that would provide incentives for environmental laws to be broken.

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



Cumulative effects on target and non-target species related to the proposed action are discussed in Section 5.7 of this document. Based on that discussion, the cumulative effects are not expected to be significant.

**FONSI Statement**

In view of the analysis presented in this document, it is hereby determined that the proposed action will not significantly impact the quality of the human environment, as described above. The impacts and alternatives in this document were analyzed with regard to both context and intensity, and are deemed not to be significant. Accordingly, the preparation of an Environmental Impact Statement (EIS) or Supplemental EIS for the proposed action is not necessary.

*Harold C. Meyer*

*5/23/2012*

*for* NMFS, Northeast Regional Administrator

Date