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**Gulf of Maine Research Institute
Responsibly Harvested Seafood from the Gulf of Maine Region**

**Report on
Georges Bank Haddock**

- ☒ The fishery is managed by a competent authority and has a management plan in place that incorporates a science-based approach to ensure sustainability.
 - *GB haddock is managed by NMFS and NEFMC, and regulated by the Northeast Multispecies Fishery Management Plan, which utilizes the best available science to set biological reference points and harvest restrictions.*

- ☒ If stock sizes are below management target levels, whether due to natural or man-made causes, management plans are established that enable rebuilding within a specified timeframe.
 - *GB haddock stock size is not below management target levels; the stock is fully rebuilt.*

- ☒ Sufficient data exists to determine harvest levels.
 - *The Groundfish Assessment Review Meeting utilized fisheries-dependent and –independent data to determine biological reference points, which are assessed through the Council process. Ultimately, the Council sets the harvest levels (Annual Catch Limits) based on these data and information, which incorporate uncertainty. It is not considered a data poor species.*

- ☒ Monitoring and compliance measures are in place to ensure acceptable harvest levels.
 - *GB haddock catch is monitored through vessel trip reports (VTRs), observers, dealer reports, and for sectors, dockside monitoring and other electronic reporting requirements. Compliance is assessed through consistency throughout these reports as well as enforcement in the field.*

- ☒ Enforcement exists to ensure that harvesters follow regulations, and to prevent illegal practices and unreported harvest.
 - *U.S. Coast Guard, NMFS Office of Law Enforcement agents, and state marine patrol agents enforce the laws and regulations governing the harvest of GB haddock.*

I. Definition of Georges Bank Haddock

Georges Bank haddock (*Melanogrammus aeglefinus*) is harvested from the shallow productive waters of Georges Bank, off the coast of Massachusetts (see Figure 1). The National Marine Fisheries Service (NMFS) manages this stock, although the transboundary management unit of Georges Bank haddock, which corresponds to US statistical areas 551, 552, 561, and 562 (referred to as eastern Georges Bank haddock) is managed jointly with Canada. Most of the US landings come from trawl gear, with a small amount of landings from hook and line and gillnet (NEFSC 2008).

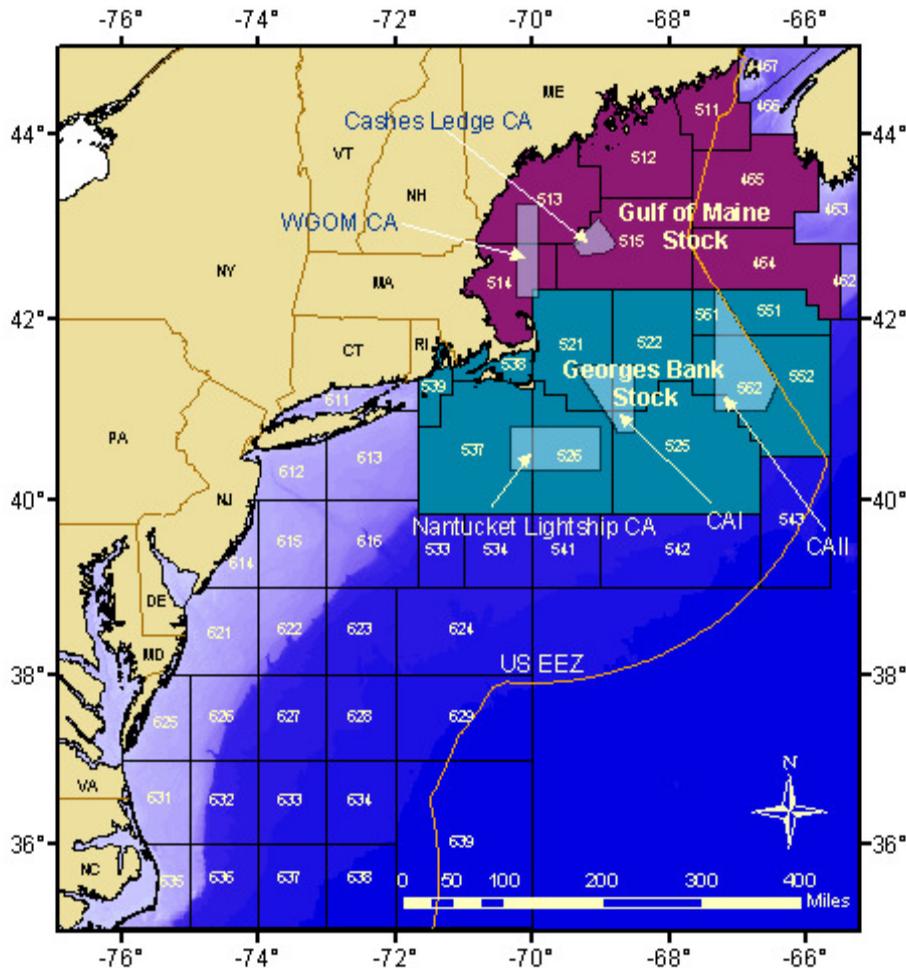


Figure 1. Statistical areas included in the Georges Bank haddock management unit are shown in green (Brodziak et al. 2006).

II. Description of the Management Authority and Regulatory Process

Responsibility of Georges Bank haddock management lies within [NMFS](#), which is a part of the [National Oceanic and Atmospheric Administration \(NOAA\)](#). The [New England Fishery Management Council \(NEFMC\)](#) facilitates the development of Georges Bank haddock regulations as part of a complex of 15 groundfish species that are managed together as the Northeast Multispecies Fishery. The NEFMC consists of 18 voting

members, including the Regional Administrator for NMFS, the principal marine resource management official from each New England state, and governor appointees.

For Georges Bank haddock management, the NEFMC is advised by an oversight committee that currently consists of representatives from state and federal management agencies, the fishing industry, and environmental groups. This committee is responsible for the development of the fishery management plan and regulations that are consistent with the ten national standards outlined in the [Magnuson Stevens Act \(MSA\)](#), which dictate that conservation and management measures shall:

1. Prevent overfishing while achieving optimum yield.
2. Be based upon the best scientific information available.
3. Manage individual stocks as a unit throughout their range, to the extent practicable; interrelated stocks shall be managed as a unit or in close coordination.
4. Not discriminate between residents of different states; any allocation of privileges must be fair and equitable.
5. Where practicable, promote efficiency, except that no such measure shall have economic allocation as its sole purpose.
6. Take into account and allow for variations among and contingencies in fisheries, fishery resources, and catches.
7. Minimize costs and avoid duplications, where practicable.
8. Take into account the importance of fishery resources to fishing communities to provide for the sustained participation of, and minimize adverse impacts to, such communities (consistent with conservation requirements).
9. Minimize bycatch or mortality from bycatch.
10. Promote safety of human life at sea.

To help the oversight committee meet these requirements, an Advisory Panel made up of representatives from the fishing industry, scientists, and conservation organizations provides input to management measures. The chairs of the oversight committee provide detailed guidance (terms of reference) to a Plan Development Team (PDT), which consists of scientists, managers and other experts on biology and/or management of haddock. Then the PDT provides reports to the oversight committee in response to the terms of reference. The PDT meets regularly to provide analysis of species-related information and to develop issue papers, alternatives, and other documents as appropriate. Figure 2 provides a visual of this process.

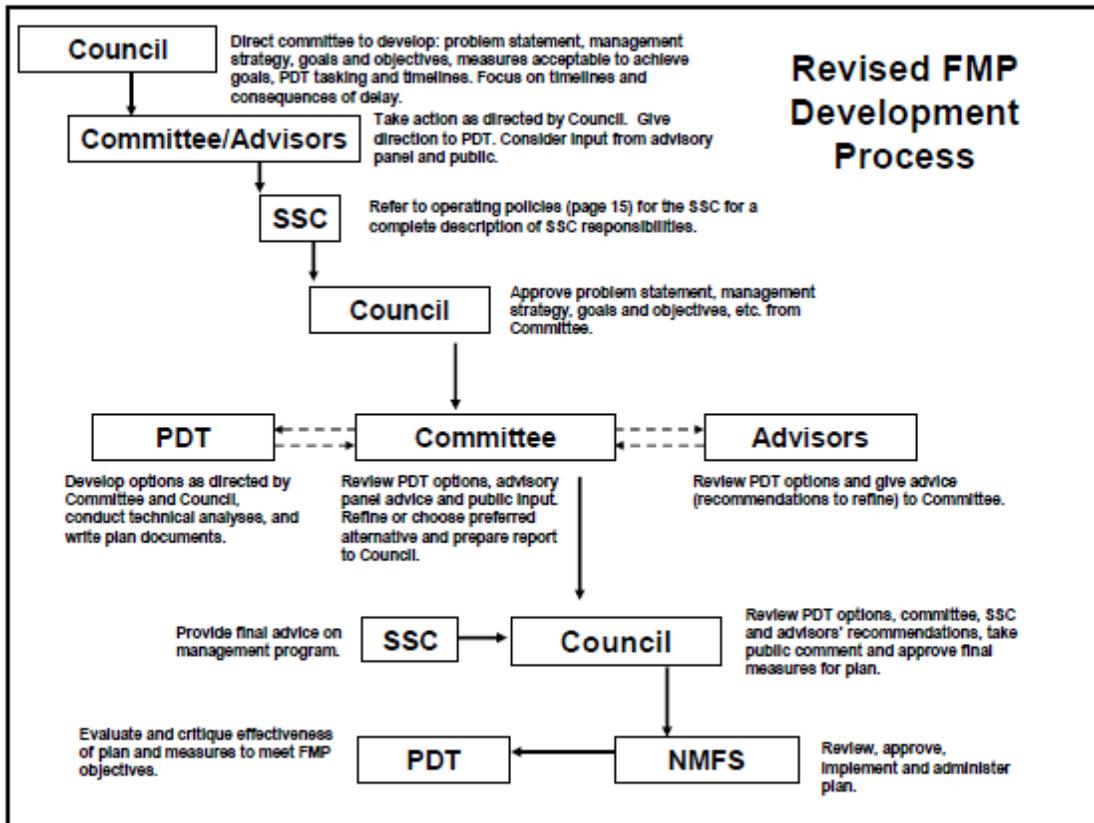


Figure 2. Fishery Management Plan Process (Fiorelli 2008)

The Georges Bank haddock stock is also a transboundary resource, meaning the stock migrates across international boundaries. Therefore, management of a portion of the stock is coordinated with Canada through the Transboundary Resources Assessment Committee (TRAC) process. The Canadian fishery on Georges Bank is managed under an individual quota system. An informal quota sharing understanding between Canada and the U.S. was implemented in 2004 to share the harvest of the transboundary portion of the stock. This understanding includes total allowable catch (TAC) quotas for each country as well as in-season monitoring of the U.S. catch of haddock on eastern Georges Bank.

III. Georges Bank Haddock Data

Stock Status

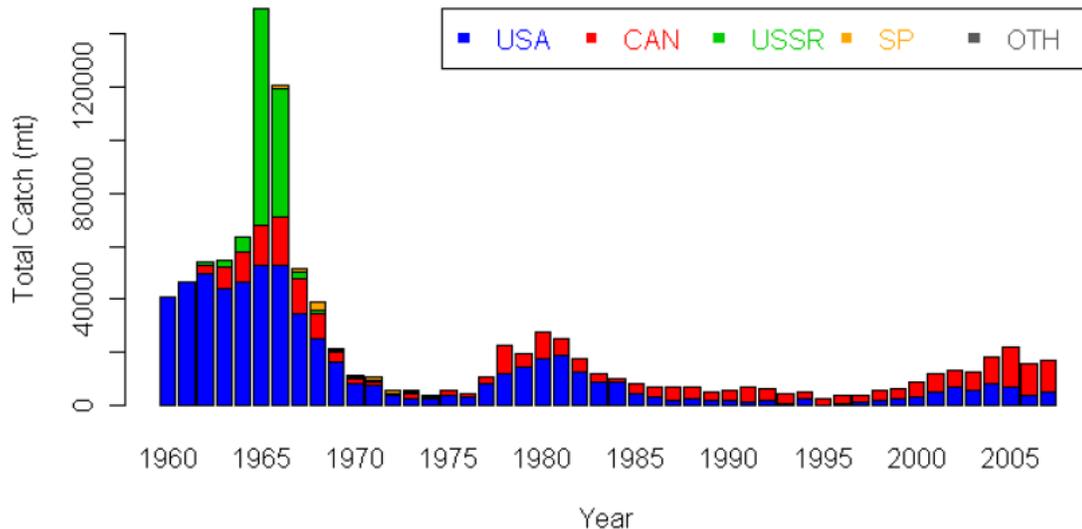
Landings and survey data are used in determining biological reference points (BRPs) for Georges Bank haddock. The latest Groundfish Assessment Review Meeting (GARM III) analysis utilized a virtual population analysis (VPA) that includes estimates for recreational landings and commercial discards. Prior to GARM III, the Georges Bank haddock stock was last assessed as part of the GARM II (Brodziak et al. 2006). GARM II, which was an update rather than a benchmark, included landings and discards through 2004, and abundance indices through 2005. The model applied was the NMFS Toolbox implementation of VPA, with catch at age extending back to 1963.

Comparing the time series of VPA estimated spawning stock biomass (SSB) and fishing mortality (F), the stock was at its most depleted in the late 1980s and early 1990s. The rate of fishing dropped sharply in 1995 and consequent gains in SSB were realized. By 2006, much of the 2003 year class had matured, and the stock was no longer overfished. It is important to note that it is not appropriate to compare the entire time series of SSB and F values (1931-2007) to the reference points derived for this assessment because the BRPs derived herein were based on only the last five years of weights and selectivity (2003-2007) (NEFSC 2008).

The most recent BRP estimates were a SSB at maximum sustainable yield (SSB_{MSY}) of 153,329 mt, and a fishing mortality (F_{MSY}) of 0.35. The equilibrium SSB was estimated to be 158,000 **Error! Bookmark not defined.** and F was estimated at 0.079 in 2008 (75 FR 18262; April 9, 2010). As biomass (B) levels are greater than half the B_{MSY} , and F is less than F_{MSY} , Georges Bank haddock is not overfished and overfishing is not occurring. This stock has been rebuilt since 2006.

Sufficient data exist to determine harvest levels, and the annual catch limits (ACLs) for this stock in fishing years (FY) 2010-2012 are identified in the final rule for Framework Adjustment 44.¹

Total catches of Georges Bank haddock increased from a low of 2,442 mt in 1995 to the recent high of 21,814 mt in 2005. Figure 3 provides a graphical depiction of total catch by country for Georges Bank haddock from 1960 to 2007. The average U.S. catch for years 2001-2007 is 6,032 mt. U.S. landings in 2006 and 2007 were 2,643 mt and 2930 mt, respectively, which is less than half of the 2001-2005 average landings of 6,218 mt. Estimated landings for the recreational sector were zero for 2007, and in previous years they were either estimated to be zero or assumed to be negligible (NEFSC 2008).



¹ A Framework Adjustment is an abbreviated rule-making process for actions within the scope of the existing goals and objectives of the respective fishery management plan (Amendment 16 in this case), and with no significant impacts on the human or physical environment.

Figure 3. Total catch (mt) of Georges Bank haddock by country, 1960-2007 (NEFSC 2008)

Sources of Uncertainty

The following excerpt from GARM III describes sources of uncertainty for this stock:

The primary sources of uncertainty for this stock are the age specific mean lengths and weights. Changes in mean size at age, as well as changes in management regulation, have altered the selectivity at age. This, combined with lower weights at age, led to a higher fishing mortality rate and lower values for SSB_{MSY} and MSY . In the future, if these trends are reversed, then the reference points could be expected to shift towards the values estimated by NEFSC (2002) (NEFSC 2008).

Annual TACs for the sub-allocation of eastern Georges Bank haddock are determined through a process involving the Council, the Transboundary Management Guidance Committee (TMGC), and the U.S./ Canada Transboundary Resources Steering Committee. The recommended FY 2010 TACs were based on the most recent stock assessments (Gavaris et al. 2009), and the fishing mortality strategy shared by NMFS, the Department of Fisheries and DFO. For Eastern Georges Bank haddock, the TMGC concluded that the most appropriate combined U.S./Canada TAC for FY 2010 is 29,600 mt. This results in recommended allocations of 40.5 percent of the shared TAC to the United States, and 59.5 percent to Canada, or a quota of 11,988 mt for the U.S. and 17,612 mt for Canada.

IV. Northeast Multispecies Fisheries Management Plan

The Northeast Multispecies Fishery Management Plan (FMP) was implemented in 1986 to reduce fishing mortality of heavily fished groundfish stocks and to promote rebuilding to sustainable biomass levels. Sixteen species of groundfish are managed under Amendment 16 to Northeast Multispecies FMP. Thirteen large-mesh species are managed together based on fish size and type of gear used to harvest the fish: Atlantic cod, haddock, pollock, yellowtail flounder, witch flounder, winter flounder, windowpane flounder, American plaice, Atlantic halibut, redfish, ocean pout, white hake, and wolffish. The other three species (silver hake [or whiting], red hake, and offshore hake) are managed under a separate small-mesh multispecies program pursuant to Amendment 12 of the Northeast Multispecies FMP. Because several large-mesh species are managed as two or more separate stocks, e.g., Gulf of Maine haddock and Georges Bank haddock, there are a total of 20 separate stocks of groundfish managed under the FMP.

The groundfish complex has been managed by seasonal and year-round area closures (i.e., no fishing in certain areas), gear restrictions (i.e., specified mesh size, number of nets/hooks, etc.), minimum fish size limits, trip limits (i.e., limiting fishermen to a certain poundage of fish per trip), limited access (i.e., limiting the number of participants in the fishery) and restrictions on the number of days a vessel is allowed to fish for groundfish each year (i.e., days-at-sea). In May 2004, Amendment 13 to the FMP implemented formal rebuilding plans for groundfish stocks, including Georges Bank haddock, based

on revised biomass and fishing mortality targets derived by the Working Group on Re-evaluation of Biological Reference Points for New England Groundfish. The overall goal of these actions was to reduce fishing mortality to rebuild depleted groundfish stocks to target biomasses.

The current regulations, which were implemented by Amendment 16 in 2010, implement new requirements under the Magnuson-Stevens Reauthorization Act (MSRA) of 2006. The MSRA requires the NEFMC to determine Annual Catch Limits (ACLs) and Accountability Measures (AMs) for all managed stocks. This action implements a process for calculating an ACL in addition to the Overfishing Level (OFL) and Acceptable Biological Catch (ABC) for each stock. Recommendations for these figures are developed by the PDT. The Science and Statistical Committee (SSC) recommends ABC levels, and the NEFMC approves final ACLs, but cannot exceed the SSC's recommended levels. ACLs may be broken into subcomponents for different segments of the fishery, including state waters, commercial, recreational, sectors, and the common pool. Although the following stocks do have ACLs, possession is prohibited due to their overfished status: SNE/MA winter flounder, windowpane flounder, ocean pout, and wolffish. In addition, halibut catch is limited to one fish per trip. Northeast Multispecies permit holders are eligible to receive an allocation for the remaining 14 groundfish stocks.

Amendment 16 also implements general regulations for the fishery, as well as species- and stock- specific regulations for vessels in the common pool and in sectors. Beginning in 2010, commercial harvesters of Georges Bank haddock will be managed in two self-selecting categories: Common Pool and Sectors. The following sections describe each of these categories.

Common Pool

Members in the common pool are managed by an effort control system that regulates the number of days a harvester may fish. In addition to a limited number of days a harvester may fish, controls include 24-hour days-at-sea counting, trip limits on other groundfish stocks, gear restrictions, minimum mesh size restrictions, gillnet restrictions, hook limits, seasonal and year-round closures, minimum fish size restrictions, and special access programs. Specific effort control measures are described in the final rule for Amendment 16 (NMFS 2010). For example, minimum mesh size for trawl gear used to target haddock is 6.5-inch diamond or square mesh. As of May 27, 2010, the regional administrator for NOAA's Northeast Regional Office implemented a 1,000-lb trip limit for Georges Bank haddock for common pool vessels.

In 2010 and 2011, in the year following an overage of any ACLs specified for vessels in the common pool, the rate DAS are charged would be increased proportional to the overage. In 2012, trimester hard TACs (total allowable catch) will be used as a primary AM, and the fishery will be suspended once the ACL of a stock is reached.

Sectors

Seventeen sectors have been authorized in the New England region. Sectors are self-selecting and largely self-regulating groups of fishermen who collaboratively manage an

allocation of fish. Sectors must draft and submit formation proposals, operations plans, and sector monitoring plans, revised enforcement provisions, and clarification of the interaction of sectors with Special Management Programs, such as U.S./Canada management areas. Sectors are required to submit supporting environmental impact assessment documents with their application and operations plan.

In exchange for fishing under an ACL for each allocated species in the management plan, sectors are exempt from most common pool effort control measures, such as limited number of days at sea and trip limits. These are referred to as universal exemptions. A Sector's allocation of an ACL for a particular stock is called the Annual Catch Entitlement, or ACE. At-sea and dockside catch monitoring ensures that sector ACEs are not exceeded. For each permit that is eligible to join a sector, the permit's Potential Sector Contribution (PSC) is calculated based on the permit's catch history. The ACE that is allocated to a sector is based on the sum of the PSCs for the permits that join the sector. Sector participants are not allowed to discard legal sized fish, and all fish caught count toward their allocations.

The following universal exemptions from Amendment 16 and measures from Framework 44 directly affect sector vessel's access to Georges Bank haddock:

- Vessels fishing in sectors now have access to the Georges Bank Seasonal Closure Area in May.
- Sector vessels are also exempt from the Georges Bank Regulated Mesh Area requirement to use a 6.5-inch minimum codend mesh size when using either a haddock separator trawl or Ruhle trawl (a minimum mesh size of 6.0 still applies).

Regulations Shared by Common Pool and Sector Vessels

The following regulations and Special Access Program (SAP) requirements exist for Georges Bank haddock:

- Minimum size for haddock is 18 inches
- Common pool and sector vessels will have access to the CAI Hook Gear Haddock SAP from May 1 through January 31.
- Common pool and sector vessels will have access to the CA II Yellowtail Flounder/Haddock SAP to target Georges Bank haddock with the haddock separator trawl, Ruhle trawl, or hook gear. The season is August 1 through January 31. (The CAII SAP is closed to targeting yellowtail.)
- Common pool and sector vessels would both have a specific allocation of Georges Bank haddock from the Eastern U.S./Canada TAC.

Framework 44 delayed the opening of the Eastern U.S./Canada Area for sector and non-sector trawl vessels from May 1 to August 1, 2010, which will directly affect access to eastern Georges Bank haddock.

V. Monitoring

Monitoring of the common pool is carried out through several different programs. When fishing in certain areas, such as the Eastern U.S./Canada Area, vessels are required to

submit daily vessel trip reports (VTRs), which provide details on type of gear fished, area fished, species caught (and discarded), dealer information, and port of landing information, in addition to other details. The New England Fisheries Observer Program (NEFOP) employs at-sea observer coverage and port sampling for the groundfish fleet. The final rule for Standardized Bycatch Reporting Methodology (SBRM) states that the Regional Administrator and the Science and Research Director will allocate at-sea observer coverage to the applicable fisheries of the Northeast Region sufficient to achieve a level of precision (measured as the coefficient of variation [CV]) no greater than 30% for each (73 FR 4736; January 28, 2008). In addition, vessels fishing in SAPs are required to contact NEFOP prior to their trip to determine if they will have observer coverage. There are also shore-side port samplers who periodically work at fish auctions and exchanges taking biological samples. This program ensures compliance with the MSA in addition to the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Shore-side, there is 100% electronic dealer reporting on a weekly basis, which includes, but is not limited to, unique trip identifier, quantity of species landed, price per unit by species, and port and state landed.

Sectors have additional monitoring requirements. Sector operations plans specify how a sector will monitor its catch to assure that sector catch does not exceed the sector allocation. In addition, 50% random dockside monitoring is required in Fishing Year (FY) 2010, and will be reduced to 20% in subsequent years. While at-sea monitoring is not required until 2012, NMFS is providing funding to cover the costs of at-sea monitoring in FY 2010, which provides vessels with a more accurate estimate of discards, and therefore it is assumed that the majority of sectors will participate in at-sea monitoring in FY 2010. For those sectors that participate, at-sea monitoring is required at less than 100%, with coverage levels set by NEFSC. This level has been set at 38% in FY 2010. This monitoring is in addition to NEFOP coverage, and sector vessels are still required to submit daily VTRs.

Based on the data collected through monitoring, the Northeast multispecies complex is routinely evaluated and necessary changes to management measures are made through biennial Framework adjustments.

VI. Enforcement

In general, enforcement of the NE Multispecies FMP is coordinated through NOAA's Office of Law Enforcement (OLE). OLE Special Agents and Enforcement conduct complex criminal and civil investigations, board vessels fishing at sea, inspect fish processing plants, and conduct patrols on land, in the air and at sea. In addition to this enforcement work, the OLE administers the Cooperative Enforcement Program (CEP), which authorizes certain coastal state and territorial marine conservation law enforcement agencies to enforce federal laws and regulations in the Exclusive Economic Zone (EEZ). OLE also partners with the U.S. Coast Guard (USCG) and various other federal agencies, fishery management councils, and non-governmental organizations. In the common pool, enforcement is focused on compliance with DAS, seasonal closures, closed areas, gear restrictions, and trip limits, to name a few measures. Enforcement for sector vessels will primarily rely on monitoring harvest levels through sector reporting, dockside monitoring, dealer reporting, and VTR (in addition to some of the measures described

above for which sectors are not universally exempt); however individual sectors are also responsible for self-enforcement.

It will be the responsibility of each sector to enforce any provisions adopted through procedures established in the operations plan and agreed to through the sector contract. Sectors may be held jointly liable for violations of the following sector operations plan requirements: ACE overages, discarding of legal-sized fish, and misreporting of catch (landings or discards).

V. References

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