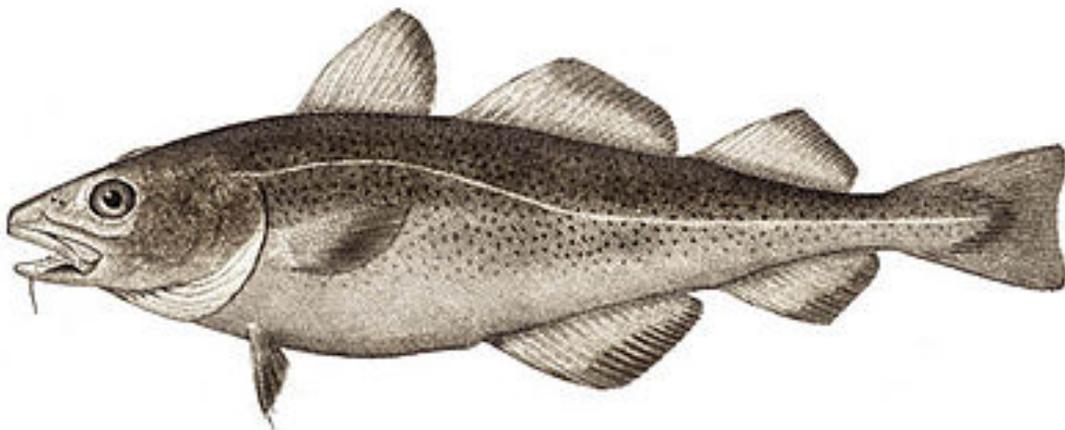


**PETITION FOR IMMEDIATE AND PERMANENT  
RULEMAKING TO PROHIBIT FISHING  
FOR GULF OF MAINE COD  
UNTIL INCIDENTAL MORTALITY DOES NOT  
EXCEED THE ACCEPTABLE BIOLOGICAL CATCH  
LIMIT**



Atlantic cod (*Gadus morhua*). Altered and prepared plate from the NOAA Photo Library

**BEFORE THE  
NATIONAL MARINE FISHERIES SERVICE  
MARCH 3, 2015**

## Notice of Petition

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## Right to Petition

The right of an interested party to petition a federal agency is a freedom guaranteed by the first amendment: “Congress shall make no law ... abridging the ... right of people ... to petition the Government for redress of grievances.”<sup>1</sup>

Under the Administrative Procedure Act (“APA”), all citizens have the right to petition for the “issuance, amendment, or repeal” of an agency rule.<sup>2</sup> A “rule” is the “whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy.”<sup>3</sup>

If such petitions are denied the agency must provide “a brief statement of the grounds for denial.”<sup>4</sup> This right “entitles the petitioning party to a response on the merits of the petition.”<sup>5</sup> Agencies must respond to petitions within a reasonable time, to “proceed to conclude a matter presented to it.”<sup>6</sup> Accordingly, the Secretary must “fully and promptly consider” all petitions presented to him.<sup>7</sup>

Petitioners seek immediate and permanent rulemaking to prohibit commercial and recreational fishing for Gulf of Maine cod (*Gadus morhua*) until the incidental mortality does not exceed the acceptable biological catch limit. Petitioners also seek immediate and permanent

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<sup>1</sup> U.S. Const., amend. I; see also *United Mine Workers v. Illinois State Bar Ass’n*, 389 U.S. 217, 222 (1967) (right to petition for redress of grievances is among most precious of liberties without which the government could erode rights).

<sup>2</sup> 5 U.S.C. § 553(e).

<sup>3</sup> *Id.* § 551(4).

<sup>4</sup> *Id.* § 555(e).

<sup>5</sup> *Fund for Animals v. Babbitt*, 903 F. Supp. 96, 115-116 (D.D.C. 1995).

<sup>6</sup> 5 U.S.C. § 555(b).

<sup>7</sup> *WWHT, Inc. v. F.C.C.*, 656 F.2d 807, 813 (D.C. Cir. 1981).

rulemaking to limit catch, including discards, to the level that achieves the fishing mortality that meets rebuilding requirements (“F<sub>rebuild</sub>”), in accordance with Amendment 16.<sup>8</sup> The provisions of this Petition are severable. If any provision of this Petition is found to be invalid or unenforceable, the invalidity or lack of legal obligation shall not affect the other provisions of the Petition.

NMFS has the authority to take the requested actions under the Magnuson-Stevens Fishery Conservation and Management Act (“Magnuson-Stevens Act”).<sup>9</sup> Thus, the petitioner has the right to petition for revision of these rules. NMFS is required to respond to this petition: “Prompt notice shall be given of the denial in whole or in part of a written application, petition, or other request of an interested person made in connection with any agency proceeding.”<sup>10</sup> The APA further requires that “within a reasonable time, each agency shall proceed to conclude a matter presented to it.”<sup>11</sup>

Further, the APA provides for judicial review of a final agency action.<sup>12</sup> The scope of review by the courts is determined by section 706 of the APA.<sup>13</sup> The APA also permits courts to compel agency action unlawfully withheld or unreasonably delayed.

## **Petitioners**

The Center for Biological Diversity is a nonprofit environmental organization dedicated to the protection of imperiled species and their habitats through science, education, policy, and environmental law. The Center’s Oceans Program aims to protect marine life and ocean ecosystems in United States and international waters. The Center has over 825,000 online activists and members. The Center submits this petition on its own behalf and on behalf of its members and staff with an interest in protecting the ocean environment.

Greenpeace is an independent campaigning organization that uses peaceful direct action and creative communication to expose global environmental problems and to promote solutions that are essential to a healthy ocean.

SandyHook SeaLife Foundation (SSF) promotes marine conservation through education, volunteerism, and political action with special focus on creating sustainable fisheries. Dr. Thomas Armbruster, marine biologist, diver, physician and recreational/commercial fisherman launched SandyHook SeaLife Foundation in 2006. SSF has a vision of comprehensive public support for the protection of our endangered marine environment.

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<sup>8</sup> For the years 2015-2017, this is 200 metric tons (“mt”).

<sup>9</sup> 16 U.S.C. §§ 1854(b)(1)(B), (b)(3), (c)(1); 1855(d).

<sup>10</sup> 5 U.S.C. § 555(e).

<sup>11</sup> *Id.* § 555(b).

<sup>12</sup> *Id.* § 704.

<sup>13</sup> *Id.* § 706.

Turtle Island Restoration Network is an environmental organization with approximately 10,000 members and more than 70,000 online activists and supporters throughout the United States and the world, each of whom shares a commitment to the study, protection, enhancement, conservation, and preservation of the world's marine and terrestrial ecosystems.

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## **I. Executive Summary**

Gulf of Maine cod has declined to its lowest estimated abundance in history. Over 150 years of commercial fishing have depleted the cod stock to 3 to 4% of healthy levels. Even more alarmingly, the stock has suffered a 90% decline since 1982 and a 77% decline since 2009. Substantial reductions in catch limits have not reversed the decline, resulting in a current fishing mortality rate near all-time highs.

Two characteristics of cod underpin its demise: their historical ubiquity and their natural suitability as human food. First, as bottom-dwellers, cod feed on a variety of marine life – crabs, lobsters, fish – which allowed the species to cover large areas of the Atlantic consuming the available biota. In the words of author Paul Greenberg, cod formed a “predatory canopy” over the ocean bottom and “marauding hordes . . . monopolized the most productive swath of current.” Second, in the days before refrigeration, fishermen easily preserved cod by salting it, which worked because low levels of oil in the flesh led to relatively slow decay. As a result of their general abundance and convenience cod became a favorite catch, the link to transfer energy from ocean bottom to humans.

Modern management has failed to prevent overfishing, and has driven cod’s decline. The Magnuson-Stevens Act – a statute enacted to protect and recover depleted fishery resources – requires that overfished stocks like Gulf of Maine cod be rebuilt within ten years. To do that, in 2004 the New England Fishery Management Council’s (“the Council”) established a rebuilding plan including catch limits and sector allocations, which allowed fishermen that joined sectors to work together to manage an annual allocation of fish. Because Gulf of Maine cod mortality remained higher and abundance lower than projected, the Council’s 2004 plan to rebuild the stock failed. And, in 2012, only two years before the deadline for rebuilding, the National Marine Fisheries Service (“NMFS”) determined that the plan was inadequate to rebuild the stock.

The Council continues to fail to reduce catch consistent with rebuilding Gulf of Maine cod. Most recently the Council took final action on Framework Adjustment 53, but set a higher catch limit than Amendment 16’s control rule, the fishery management plan’s approach to catch limits, allows. Accordingly, the Magnuson-Stevens Act compels the Secretary to reject the Council’s proposed Framework Adjustment 53 and reduce fishing immediately to levels projected to achieve rebuilding by 2024.

In the past four years, three assessments have confirmed the downward trend of Gulf of Maine cod. Because the most recent stock assessment update demonstrates that Gulf of Maine cod are at their lowest ever abundance, the fishing mortality rate is near all-time highs, and the Council has failed to propose catch limits consistent with applicable law, the Petitioners formally petitions NMFS to take the following regulatory action:

- (1) Prohibit commercial and recreational fishing for Gulf of Maine cod (*Gadus morhua*) until the incidental mortality does not exceed the acceptable biological catch limit.**
- (2) Limit catch, including discards, to the level that achieves the fishing mortality that meets rebuilding requirements (“ $F_{\text{rebuild}}$ ”), in accordance with Amendment 16.<sup>14</sup>**

The alarmingly low abundance marks a turning point for cod – either towards extinction or rebuilding. We urge NMFS to reform Gulf of Maine cod management by immediately taking the steps listed above.

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<sup>14</sup> For the years 2015-2017, this is 200 metric tons (“mt”).

## **II. NMFS Must Halt the Decline of Gulf of Maine Cod.**

Overfishing has devastated the Gulf of Maine cod stock. In August 2014, scientists determined that Gulf of Maine cod reached their lowest abundance ever recorded. At the same time, the fishing mortality rate was near all-time highs (NMFS, 2014a). This depletion occurred not for a lack of awareness, but because inadequate management measures failed to reduce overfishing or rebuild the stock. This severely depleted cod stock clearly needs additional protections.

Climate change is warming the Gulf of Maine and having complicated effects on ocean circulation, food webs, and habitat, making it urgent to end overfishing to increase cod's resiliency to these changes. In the Barents Sea, where the cod stock has reached unprecedented highs, drastic reductions in fishing and a positive climate that increased feeding habitat led to the recovery (Kjesbu et al., 2014). Implementation of a harvest control rule resulted in a doubling of the total biomass compared with that expected under the former management regime, showing that reducing fishing was essential to the increase in population (*id.*).

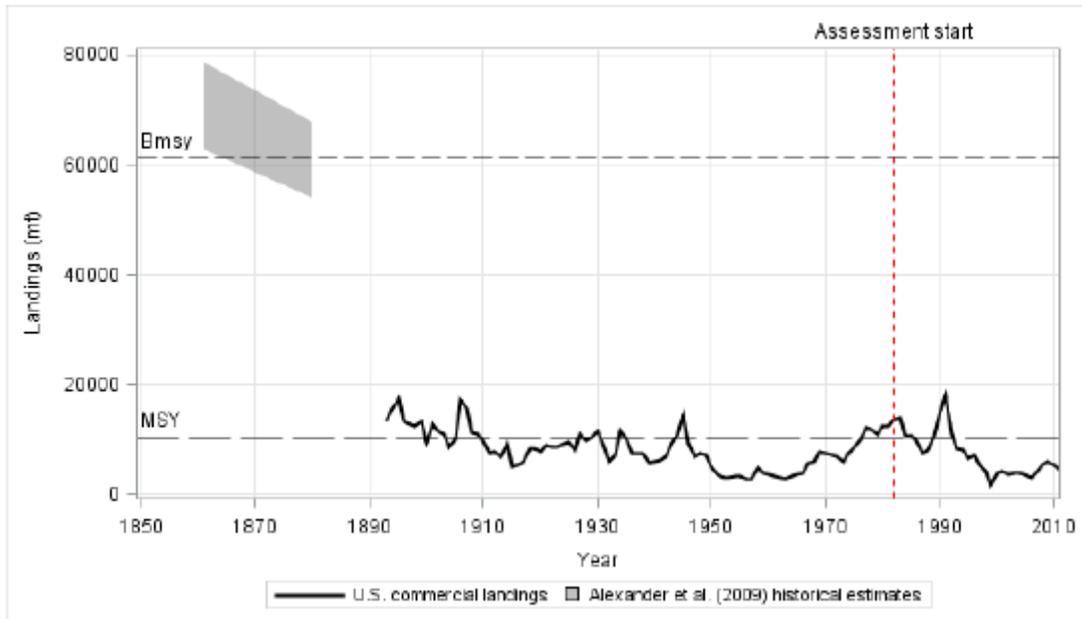
While current data indicate that cod is adaptable, tolerant, and capable of surviving and growing in a wide range of temperate marine climates (-1.5°C to 19°C) (Righton et al., 2010), effects on prey species of adults and larvae may have unknown impacts on the Gulf of Maine cod stock. Friedland et al. (2013) showed that as the amount of cooler water habitat has declined on the U.S. northeast continental shelf, two zooplankton species that feed larval cod have declined in abundance in the same areas where cod have shown poor recruitment. This supports the hypothesis that oceanographic changes can impact Gulf of Maine cod's reproductive success (Friedland et al., 2013), but does not outweigh the evidence that overfishing alone can explain cod's decline in abundance (Hilborn and Litzinger, 2009).

Reducing fishing mortality is more urgent now than at any point in history because of (1) the extent of overfishing and (2) the potentially irreversible effects on the ecology of Gulf of Maine cod.

### ***A. The best available science demonstrates that Gulf of Maine cod stock's historically low abundance is a result of overfishing.***

Gulf of Maine cod stock is in the worst condition ever documented. The stock is at historically low abundances and lacks old, highly fecund cod that are better at reproducing than younger fish (NMFS 2014a). While several reasons potentially explain the decline (*e.g.* habitat change), Hilborn and Litzinger (2009) showed that continued high fishing pressure can explain the decline for Gulf of Maine cod. Based on records of catch and total abundance, the authors concluded that the majority of cod stocks would recover if fishing pressure were adequately reduced (Hilborn and Litzinger, 2009).

A long history of heavy fishing has led to today’s low abundance. Fishermen have caught Gulf of Maine cod since pre-historic times (Alexander et al. 2009), but scientists have estimated landings between 1861 and 1870 each year were approximately equal to all the mature adults in the current Gulf of Maine cod stock (*id.*). Landings during those years were more than triple the highest landings recorded since the late 1890s (fig. 1). This suggests that historical productivity and abundance of Gulf of Maine cod were even higher than scientists now estimate and the decline even more severe (Alexander et al., 2009).



**Figure 1.** U.S. commercial landings (mt) of Gulf of Maine cod, 1861-2011. Reference points are shown by black the dashed lines ( $B_{MSY} = 61,218$  mt,  $MSY = 10,392$  mt). The polygon approximates landings 1861-1870 from Alexander et al.’s (2009) conversions of salted cod to live fish. (Source: SAW, 2013, fig. A.19).

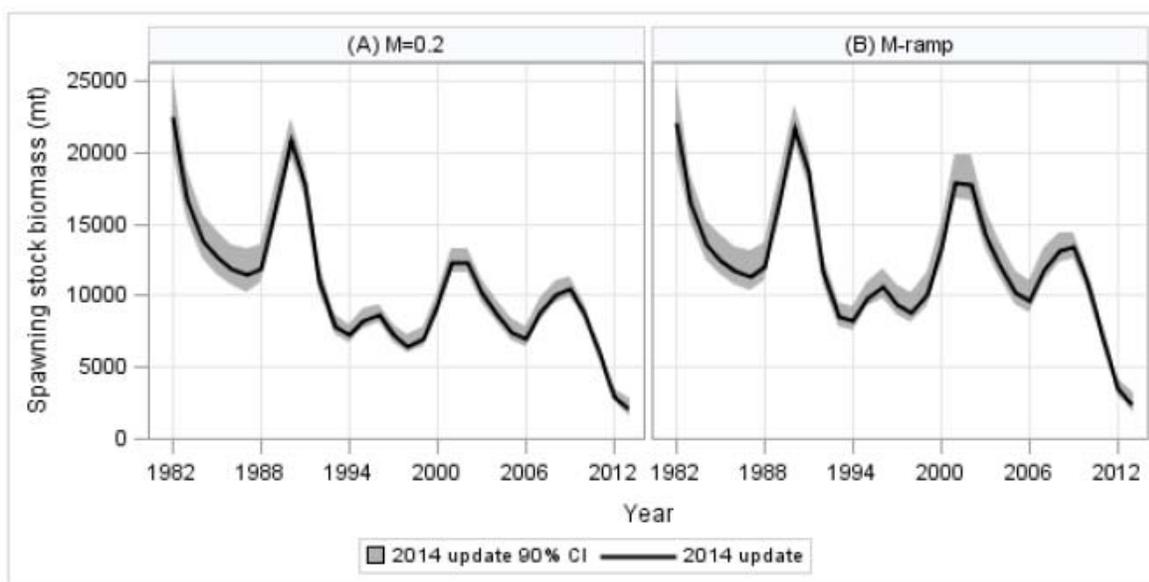
Since 1982, the stock has suffered a massive 90% population decline. A staggering 77% of that decline occurred in the last five years alone (NEFSC, 2014, Table 1.32). This precipitous decline is mainly because the majority of cod large enough to harvest have been harvested each year since 2008 (PDT, Sept. 11, 2014, at 13, Table 3). As a result of overfishing the Gulf of Maine cod stock “is in the worst shape . . . seen in the 40 years” of monitoring it. (Bullard, Nov. 10, 2014).

Not only are there too few fish to produce maximum sustainable yield, but there are not enough big, old, fat, fertile, female fish (BOFFFs). Recruitment – the number of fish that grow large enough to harvest– was highest from 1982-1987 when abundance of mature fish was near the highest observed (SAW, 2013). The continued decline in abundance of mature cod (i.e., age-truncation) could compromise the Gulf of Maine cod’s ability to recover (NMFS, 2014a).

According to the Gulf of Maine Atlantic Cod 2014 Assessment Updated Report, Gulf of Maine cod is both overfished – at 3 to 4% of its target spawning stock biomass levels – and overfishing is occurring (NMFS, 2014a). Overfished refers to a stock size smaller than the threshold set to ensure a population can replace the harvested fish. Usually the threshold, called the minimum stock size threshold, is set to half the stock size that would achieve maximum sustainable yield (NRC, 2014). Overfishing refers to harvesting a stock at a rate greater than the stock’s reproductive capacity to replace fish removed through harvest. The assessment found that despite a 78% reduction in 2013 in fishing quotas, the fishing mortality rate for Gulf of Maine cod was at an all-time high (NMFS, 2014a). The assessment concluded that:

- Despite reductions in catch, survey indices of abundance have either remained low or declined further;
- Continued truncation in the age structure (catch and surveys) implies high total mortality;
- No signal exists for incoming recruitment; and
- The resource is still highly concentrated in the western Gulf of Maine for both landings and surveys.

(NMFS, 2014a). In other words, Gulf of Maine cod abundance is far below the level that would produce maximum sustainable yield (current abundance is about 2,000-2,500 mt mature cod and at least 47,184 mt is needed to produce maximum sustainable yield; *see* fig. 2), cod continue to be caught in excess of the legal limit, there is no increase in young cod in spite of catch reductions, and finally, mature cod remain highly concentrated in the western Gulf of Maine, implying that spawning grounds remain constrained as compared to historic distribution.



**Figure 2.** Adult Gulf of Maine cod (mt), 1982-2013, under two assessment models using natural mortality ( $M$ ) = 0.2 (A) and using  $M$  = a ramp from 0.2 to 0.4 (B).  $SSB_{MSY}$  is 47,184 mt and 69,621 mt, respectively (Source: NMFS, 2014b, fig. 1).

### ***B. The 2014 Stock Assessment Update called for drastically lower fishing mortality rates.***

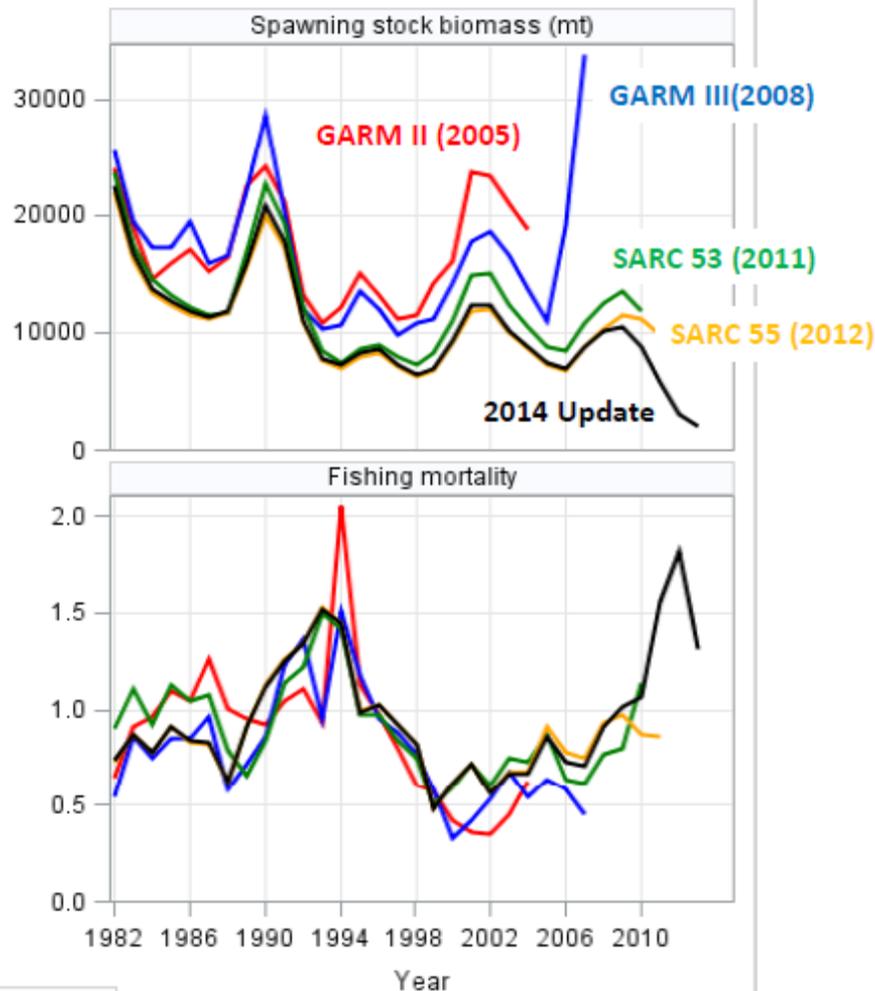
The Gulf of Maine Cod 2014 Assessment Update Report<sup>15</sup> demonstrated that current management measures thus far have failed to meet Magnuson-Stevens Act mandates to protect and rebuild Gulf of Maine cod. This most recent assessment, an update to the existing 2012 benchmark assessment for Gulf of Maine cod (NEFSC 2013), concluded that the spawning stock biomass is below 2500 mt, the stock is still overfished, and overfishing is still occurring. The inadequacy of current regulatory measures likely result from two related factors: (1) insufficient monitoring of discard mortality undermines stock assessments and (2) the uncertainty inherent in assessments of Gulf of Maine cod requires more precautionary management by the Council.

First, discards of Gulf of Maine cod hinder NMFS's ability to monitor compliance with catch limits and implement accountability measures. Low observer coverage undermines estimations of Gulf of Maine cod mortality caught as bycatch in this fishery and others. Gulf of Maine cod are caught primarily (over 90%) by two commercial gears: otter trawls and gillnets (NEFSC, 2008). Small amounts are caught by line trawls and handlines (hook gear) (*id.*). Otter trawls and gillnets both catch groundfish indiscriminately, including cod. While estimated commercial discards have decreased in the last decade (since 2006 commercial discards have

<sup>15</sup> The Gulf of Maine Cod 2014 Assessment Update Report is available at: [http://www.nefsc.noaa.gov/saw/cod/pdfs/GoM\\_cod\\_2014\\_update\\_20140822.pdf](http://www.nefsc.noaa.gov/saw/cod/pdfs/GoM_cod_2014_update_20140822.pdf).

accounted for <10% of the total catch and since 2010 <3%) (SAW, 2013), these estimates have high uncertainty because of inadequate observer coverage. Recreational discards have become an increasingly important component of estimated catch, with discards more than two times the landings in terms of numbers of fish between 2006 and 2011 (*id.*). The Gulf of Maine recreational fishery has accounted for 20 to 31% of the total catch of Gulf of Maine cod over the last decade (*id.*). While the latest assessment assumes that only 30% of recreationally-released fish die, this is a key source of uncertainty given the significant recreational catch and discards in the fishery (*id.*).

Second, the Gulf of Maine Cod 2014 Assessment Update Report indicates that past assessments have consistently overestimated the abundance of mature cod (i.e. spawning stock biomass) and underestimated fishing mortality, which is known as a retrospective pattern (fig. 3; NMFS 2014). Each assessment generally revised downward the spawning stock biomass and increase estimated fishing mortality rate, as additional data revealed the stock was in worse condition than previously thought (fig. 3). The 2014 Assessment Update Report states its projections will not overestimate mature stock abundance because the modeled stock size does not exceed the survey observations, as occurred in both the 2011 and 2012 assessments (*id.*). Nevertheless, the updated assessment warns that “[p]ast model performance should be accounted for when ascribing the appropriate level of scientific uncertainty” (NMFS, 2014a). In other words, managers should consider larger buffers for uncertainty in assessments and poor implementation of catch limits. NMFS should set Gulf of Maine cod catch limits lower than is projected to be necessary for rebuilding due to the history of underestimating fishing mortality (*see* PDT, 2013 (“the projected catch does not result in the desired fishing mortality, and stock growth does not occur as expected. . . . observed performance of the projections should be taken into account when determining ABCs”).)



**Figure 3.** Time series of estimated abundance of mature Gulf of Maine cod (mt) and fishing mortality rate. Each color represents an updated assessment: black (2014), and yellow, green, blue, and red are the preceding assessments, in that order. (Source: NEFSC, 2014, at 27; *see also* NRC, 2014, fig. 3.16; Legault 2009.)

The 2014 Assessment Update Report is a warning to the Council and NMFS that Gulf of Maine cod cannot wait any longer for fishing mortality rates below  $F_{\text{rebuild}}$ . Year after year management measures fail to reduce fishing mortality to meet assessment projections and declines in the stock continue. To end this trend, NMFS must end targeted fishing and limit catch to meet rebuilding requirements, in accordance with Amendment 16. Without such measures the impacts to Gulf of Maine cod may be irreversible.

***C. Over a century of fishing has significantly changed Gulf of Maine cod biology and ecology.***

Decades of overfishing Gulf of Maine cod not only caused low stock size but it has also changed the stock's age-structure, spawning locations, migratory behavior and prey. Gulf of

Maine cod thus require significantly reduced fishing mortality rates if the stock is to have any chance of rebuilding.

Age-structure is critically important to the recovery of Gulf of Maine cod. Recent bottom trawl surveys have observed a decline of older cod fish; declining spawning stock biomass and truncation of the age-structure could compromise the future recruitment success of this stock (NMFS, 2014a). Carr and Kaufman's (2009) model results indicated that older cod (ages 10 to 11) contributed 10.1-12.4 times more offspring surviving to age 1 did less experienced spawners (ages one to nine). Gulf of Maine cod historically grew to over 200 pounds and six feet long, but now "large" cod are more commonly 25 to 35 pounds and 40-50 inches (Bigelow and Schroeder 1953), and "average" fish are approximately 6-12 pounds and 25-35 inches (*id.*). A considerable portion of cod mature when they are at age three (66%) and nearly all are mature at age five (98%) (NMFS, 2014a, Table 1.36). Bottom trawl surveys find few cod exceeding eight or nine years old (*id.*, figures 1.18-1.20). This lack of BOFFs lowers the egg quality and quantity (Carr and Kaufman, 2009) and decreases the chances of reproductive success.

Low spawning stock abundance in conjunction with truncated age structure and increasingly constrained distribution limits the recovery of Gulf of Maine cod. In other words, fewer old fish result in fewer spawning events each season and mature fish are limited to the southwest Gulf of Maine (NMFS, 2014b at 20). NMFS spring and fall trawl surveys indicate that the range of Gulf of Maine cod have shifted south and to deeper, cooler water in the period from 1968 to 2007, possibly as a result of warming waters (Nye et al., 2009; NMFS, 2014b at 20). Concentrated aggregations of adult cod increase the risk that fishing pressure could catch significant numbers of spawning stock.

Overfishing aggregations of spawning cod has the potential to extirpate sub-populations and requires improved management to preserve diversity. Tagging studies and other information on larval dispersal, and life history, show fine-scale, sub-stock structure in the Gulf of Maine (Runge et al. 2010; NMFS, 2014b; Lindholm et al. 2007). With contraction of the spawning grounds from their historical extent (60 to 80 years ago) (Ames, 2004), overfishing has extirpated many spawning aggregations (Armstrong et al., 2013; Willis et al., 2013). Ames (2004) found that for Gulf of Maine cod, "[n]early half the coastal spawning grounds of 50 to 70 years ago are abandoned today." As one example, Passamaquoddy Bay cod used to be caught year-round and by 2005 had become entirely migratory, present only in low abundance in the summer (*id.*). Fishing activity on spawning grounds undoubtedly interferes with reproduction; Dean et al. (2012) found that tagged adults left spawning grounds with the opening of the gillnet fishery and did not return to the area for at least nine days afterwards. Fishing that prevents reproduction on certain spawning grounds can also lead to extirpation of the subpopulations.

Availability of prey may also influence the migration and abundance of cod (Bigelow and Schroeder 1953). Gulf of Maine cod are part of the benthic fish community, typically lying on the bottom unless following prey (Bigelow and Schroeder 1953). Cod are generalist predators,

eating fish, crustaceans, mollusks, and bivalves. Bigelow and Schroeder (1953) describe Gulf of Maine cod's prey as consisting largely of molluscs – large sea clams, cockles, and sea mussels – but also note that papers from 1913 observed cod on the Isles of Shoals-Boon Island full of brittle stars and small crabs and from 1887 observed mostly 2-4 inch shrimp in Ipswich Bay cod stomachs. Cod also pursue squid and small fish, including herring, lance, capelin, shad, mackerel, menhaden, silversides, alewives, silver hake, and even their own young (Bigelow and Schroeder, 1953).

Lack of prey due to fisheries exploitation may be preventing recovery of Gulf of Maine cod and constricting mature cod to the western Gulf of Maine (Alexander et al., 2009; SAW, 2013). Willis et al. (2013) looked for a trend in changing cod diet preference over the last century in Passamaquoddy Bay (northern Gulf of Maine, on the U.S.-Canada border) and hypothesized that as fisheries exploitation has changed, so has cod diet. Large cod caught in the summer of 1965 primarily ate fish, particularly Atlantic herring, whereas few fish were found in the diets of 2005 cod (Willis et al., 2013). The diet of cod from 2005 to 2008 was similar to the diet of fish from 1896, with more invertebrates (*id.*). This led to Willis et al. correlating the change in diet to changes in fisheries exploitation: small fish were heavily exploited in the late 1800s so cod ate invertebrates. Once motorized vessels made it possible to pull heavy dredges and scalloping began, cod ate more fish in 1965 (*id.*). Finally, in 2005-2008, forage fish, particularly Atlantic herring, were at record low abundances and scientists found none in cod stomachs (*id.*). In Passamaquoddy Bay in 2005-2008, cod were difficult to catch whereas cod sampled from the same area were classified as common in summer as recently as 1981 (*id.*). Based on these observations, the authors surmised a direct impact of fisheries exploitation since the late 1800s cod abundance in Passamaquoddy Bay (*id.*).

### **III. NMFS must act because the Council has failed to meet the central goal of the Magnuson-Stevens Act, to end overfishing and rebuild overfished stocks.**

The Council has neither met the goals of the Magnuson-Stevens Act or the mandate to end overfishing and rebuild the Gulf of Maine cod stock in accordance with the law. Because the Council's proposal for Framework 53 does not limit fishing mortality so as to ensure rebuilding by 2024, consistent with the Fishery Management Plan's control rule, NMFS must promulgate conservation and management regulations for Gulf of Maine cod. 16 U.S.C. § 1854(c).

Congress enacted the Magnuson-Stevens Act “to take immediate action to conserve and manage the fishery resources found off the coasts of the United States,” 16 U.S.C. § 1801(b)(1), and recognized that “[c]ertain stocks of fish have declined to the point where their survival is threatened . . .” 16 U.S.C. § 1801(a)(2). The Magnuson-Stevens Act was created with hopes that “[i]f placed under sound management before overfishing has caused irreversible effects, the

fisheries can be conserved and maintained so as to provide optimum yields on a continuing basis. *Id.* § 1801(a)(5). It seeks to establish conservation measures “to prevent overfishing, to rebuild overfished stocks, to insure conservation, to facilitate long-term protection of essential fish habitats, and to realize the full potential of the Nation’s fishery resources.” *Id.* § 1801(a)(6).

In pursuit of its goals, the Magnuson-Stevens Act established eight regional fishery management councils charged with preparing fishery management plans to regulate catch in their respective regions. 16 U.S.C. § 1852(a), (h). *Id.* Once the council completes the management plan, NMFS reviews it, and approves or rejects it in whole or in part, depending on whether it is consistent with applicable law. *Id.* § 1854(a). If the management plan is rejected, the council may amend it to address NMFS’s concerns, and if the FMP is approved, NMFS issues regulations to implement the plan. *Id.* § 1854(b). The Magnuson-Stevens Act also vests NMFS with the authority to implement a fishery management plan, or any necessary amendments, if the relevant council fails to do so within a reasonable time and the fishery requires conservation or management. *Id.* § 1854(c).

The Magnuson-Stevens Act specifies that fishery management plans must include conservation and management measures that prevent overfishing and rebuild overfished stocks, while protecting, restoring, and promoting the long-term health and stability of the fishery. 16 U.S.C. § 1853(a)(1)(A); *see Flaherty v. Bryson*, 850 F. Supp. 2d. 38, 43 (D.C. Cir. 2012). Ten National Standards articulate these requirements. Most importantly, National Standard 1 requires that “[c]onservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery . . . .” 16 U.S.C. § 1851(a)(1).<sup>16</sup>

Under this statutory scheme, the New England Fishery Management Council develops fishery management plans for fisheries operating in the Atlantic Ocean seaward of the states of Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut. *Id.* § 1852(a)(1)(A). Currently, Gulf of Maine cod is managed as one of thirteen species under the Northeast Multispecies Fishery Management Plan. The plan includes a variety of management measures, including time/area closures, gear restrictions, and minimum size limits.

The Northeast Multispecies Fishery Management Plan has not prevented the overfishing of cod, however, and the species is overfished (NMFS, 2014a). Additional, strict statutory requirements are triggered for overfished fisheries. 16 U.S.C. § 1854(e). First, NMFS “shall immediately notify the appropriate Council and request that action be taken to end overfishing in the fishery and to implement conservation and management measures to rebuild affected stocks of fish.” *Id.* § 1854(e)(2); *see also* Rauch, 2012. Once notified, the council has two years to

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<sup>16</sup> The other standards, some of which could be read to conflict with ending overfishing, do not trump National Standard 1 because NMFS guidelines specify that “National Standards 2 through 10 provide further requirements for conservation and management measures in FMPs, but do not alter the requirement of [National Standard 1] to prevent overfishing and rebuild overfished stocks.” 50 C.F.R. § 600.310(l).

prepare and implement a fishery management plan, amendment, or regulation. *Id.* § 1854(e)(3). Section 1854 specifies that the action taken by the council must “*end overfishing immediately* in the fishery *and rebuild* affected stocks.” *Id.* (emphasis added); *see also* Rauch, 2012.

Second, a rebuilding plan is required for each overfished species. The rebuilding period must “be as short as possible” and not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise. *Id.* § 1854(e)(4)(A).

Third, NMFS must review any fishery management plan or amendments required to address overfishing at routine intervals and – if necessary – make a determination that the plan or regulations have not resulted in adequate progress toward ending overfishing and rebuilding affected fish stocks. *Id.* § 1854(e)(7). If NMFS makes such a determination, it must “immediately notify the appropriate Council” and “shall recommend further conservation and management measures which the Council should consider” to end overfishing. *Id.*

Accordingly, the Magnuson-Stevens Act provides a clear mandate that NMFS must prevent overfishing and rebuild stocks that are deemed overfished. Further, NMFS must act when the Council fails to do so within a reasonable time and the fishery requires conservation or management. NMFS must act now to rebuild Gulf of Maine cod because the Council’s past management measures (1) failed to meet the 2004–2014 rebuilding target and (2) failed to end overfishing since NMFS concluded in 2012 that inadequate progress had been made toward ending overfishing and rebuilding Gulf of Maine cod.

***A. The Council failed to meet targets of the 2004 Gulf of Maine cod rebuilding program or end overfishing of cod.***

The Council has devoted significant effort over many years to ending overfishing and rebuilding Gulf of Maine cod, but has not been successful. NMFS implemented the Northeast Multispecies Fishery Management Plan in 1986 with the goals of reducing fishing mortality on groundfish stocks and promoting rebuilding. 51 Fed. Reg. 29642 (Aug. 20, 1986). Even in 1986, however, the Fishery Management Plan failed to comply with the Magnuson-Stevens Act because it would lead to overfishing, so NMFS temporarily implemented it for one year (*id.*). The Council prepared Amendment 1 to avoid a “hiatus in management or the preemption of Council authority through the implementation of a Secretarial FMP” (NEFMC, 1987). The Gulf of Maine cod stock continues to decline because the Council has failed to prevent overfishing.

The measures that the Council put into place even since 1986 have not ended overfishing or rebuilt Gulf of Maine cod. Since 1982 the Gulf of Maine cod stock has suffered a dramatic decline, declining 90% since 1982 and 77% just since 2009 (NEFSC, 2014, Table 1.32). In November 2014, John Bullard, Regional Administrator for NMFS’s Greater Atlantic Region, stated that “[t]he Gulf of Maine cod stock... is in the worst shape we have seen in the 40 years since [the agency] has been monitoring it.” (Bullard, Nov. 10, 2014). Therefore, NMFS has a

nondiscretionary duty to end overfishing and to rebuild the stock within ten years. 16 U.S.C. § 1854(c)(1). It has not done so.

The first rebuilding plan for Gulf of Maine cod was published in 2004, after several years of litigation and mediation between conservation groups and NMFS, 69 Fed. Reg. 22906 (Apr. 27, 2004). In 2004 the Council established sectors, groups of fishermen that together share an annual allocation of fish to catch, as an alternative to managing the fishery by limiting the number of days a vessel could fish. The change to a catch-based management system required improved catch monitoring to prevent overfishing. *Oceana v. Locke*, 831 F. Supp. 2d 95, 103 (D.D.C. 2011). Despite the management changes and possibly because of a failure to adequately monitor cod catch, the 2004 plan failed to end overfishing or rebuild cod. In fact, in each year following implementation of the rebuilding program for Gulf of Maine cod, beginning in 2004, fishing mortality has exceeded the target rate (Bullard, Nov. 18, 2014).

The failure of the Gulf of Maine cod rebuilding plan beginning in 2004 can be attributed to problems that continue to undermine the New England groundfish fishery's management: (1) inadequately conservative buffers when setting catch limits; and (2) rebuilding timelines that delay implementation to allow industry flexibility (NRC, 2014 at 50).

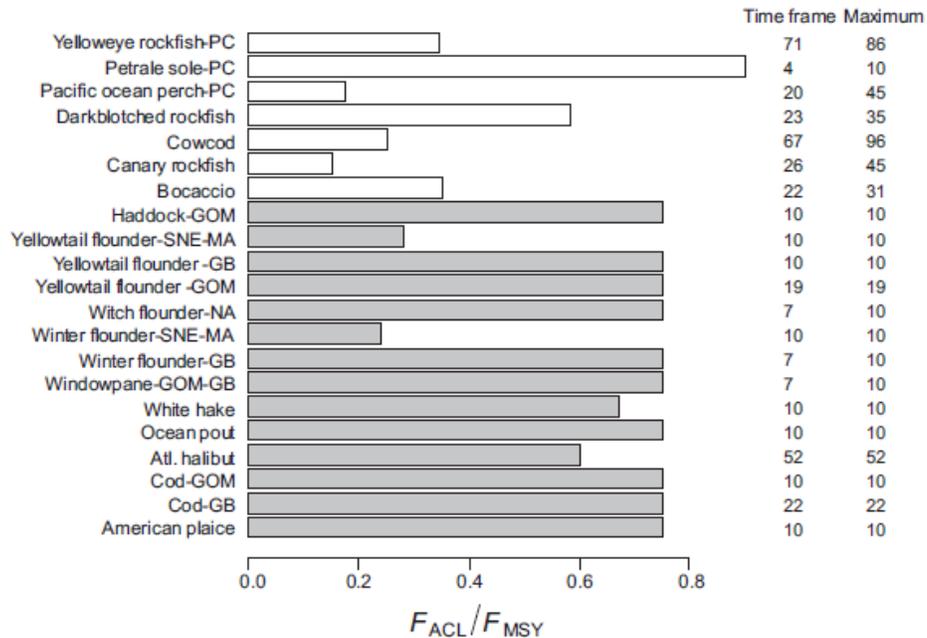
First, the Council's 2004 rebuilding plan, which maximized fishing opportunity at the expense of lower catch limits to account for uncertainty, resulted in higher fishing mortality rates and lower mature cod abundance than expected (fig. 3). Ideally the Council would account for uncertainty through risk management. The Council could reduce risk by setting catch limits lower than legally required so as to increase the chance of ending overfishing or closing spawning areas to ensure cod can replace themselves.

Inadequate regulatory measures to prevent overfishing escalated rather than decreased economic impacts. The Council's reliance on uncertain projections to maximize economic gain has led to severe economic effects. The reductions in catch necessary after years of overfishing in 2012 were estimated to cause "New Hampshire groundfish revenues [to] be reduced by 91 percent, Maine groundfish revenues [to] be reduced by 54 percent, and Massachusetts groundfish revenues [to] be reduced by 21 percent" (NRC, 2014, at 101, n.7 (quoting the Gulf of Maine Cod Working Group (2012))). Perpetuating the cycle, these economic repercussions drive the Council to continue to maximize fishing rather than reduce risk.

Political pressure also impeded sound management. The short-term economic effects have slowed rebuilding in the past by creating political pressure to make risky decisions. Eric Schwaab, assistant administrator for NOAA Fisheries from 2010-2013, said that "[a]t every point when we were trying to turn a corner in the Northeast, economic and political pressures would come to bear and fishers were granted short-term flexibility at the expense of long-term sustainability" (Rentz, 2014). The short-term economics, rather than the legal requirement to rebuild has driven Council decisions about Gulf of Maine cod.

Second, the timeline in the rebuilding plan prolonged overfishing. The Council’s use of the maximum rebuilding timeline possible (fig. 4) contradicts NMFS’s guidance interpreting the statute: “Councils should consider a lower mortality rate to meet the requirement to rebuild stocks in as short a time as possible, pursuant to the provisions in [the Magnuson-Stevens Act] section 304(e)(4)(a)(i).” 74 Fed. Reg. 3178, 3200. The same guidance says also that “adverse economic impacts do not provide a basis for continuing overfishing or failing to rebuild stocks.” 74 Fed. Reg. 3201.

Despite this guidance the Council delayed reductions in catch and opted for the longest rebuilding timelines in order to offset economic impacts. The National Research Council compared the time frames and the fishing mortality rates of rebuilding plans by the New England Fishery Management Council with those of the Pacific Fishery Management Council (fig. 4). The New England Fishery Management Council was more likely than its west coast counterpart to set rebuilding time frames at the maximum statutorily allowed, and at the maximum recommended fishing mortality rate.



**Figure 4.** Target fishing mortality ( $F_{ACL}$  scaled to estimated  $F_{MSY}$ ) used to calculate 2012 catch limits for groundfish stocks subject to rebuilding plans under the Council (gray bars) and the Pacific Fishery Management Council (white bars), and the corresponding length of the rebuilding plan. “Maximum” means the maximum permissible rebuilding period. Rebuilding plans are based on a constant fishing mortality strategy except for Petrale sole. (Source: NRC 2014, fig. 3.7)

## ***B. The Council has failed to end overfishing.***

In 2012, year eight of the first 10-year rebuilding plan, NMFS determined that the Northeast Multispecies Fishery Management Plan had not resulted in adequate progress (Rauch, 2012). The stock could not rebuild by 2014 even in the absence of all fishing mortality (*id.*). This determination triggered a requirement for a new rebuilding plan. Despite the failure of the rebuilding in the previous decade, the Council's subsequent actions continue to be inadequate.

In response to the determination, the Council sought an extension to comply with its duty to end overfishing immediately. 16 U.S.C. § 1854(e)(3); 79 Fed. Reg. 22424. NMFS allowed a delay, exercising its emergency authority to allow more fishing of the cod stock than was recommended, in hopes of easing the burden on fishermen as the stock transitioned to a lower catch limit. *See* Temporary Rule, 77 Fed. Reg. 25,623, 25,623-24 (May 1, 2012). Thus, NMFS implemented a year-long interim measure insufficient to stop overfishing.<sup>17</sup>

When that expired, the Council requested a second year of overfishing, however, this time NMFS rejected the Council's unlawful request to extend the temporary exception, citing the "overarching requirement of the [Magnuson-Stevens Act] to end overfishing immediately" (Bullard, 2013). Although it did not technically allow overfishing for a second year, in Framework Adjustment 50, NMFS did allow rollover of unused quota from 2012 for use in 2013. (Bullard, 2013; *see* 78 Fed. Reg. 26172 (May 3, 2013) (interim final rule); 78 Fed. Reg. 53363 (Aug. 29, 2013) (final rule)). The rollover resulted in a catch limit above the Science and Statistical Committee (SSC) recommendation, in violation of the Magnuson-Stevens Act. *See* 16 U.S.C. § 1852(h)(6); *see also Conservation Law Found. v. Pritzker*, 2014 U.S. Dist. LEXIS 46543, (D.D.C. Apr. 4, 2014), (*appeal dismissed by* 2014 U.S. App. LEXIS 18234 (D.C. Cir., July 24, 2014)).

Each of three stock assessments in the last four years has showed a continuing decline in Gulf of Maine cod abundance (Bullard, Nov. 18, 2014). Overfishing has occurred every year since the determination in 2012, when NMFS determined that the prior rebuilding plan was ineffective. As a result, Gulf of Maine cod fishing mortality is near all time highs despite the fact that fishery catches are at the lowest levels in the time series (NMFS, 2014a). But by delaying catch reductions and using the maximum rebuilding time possible, i.e. the highest fishing mortality rate allowed under the law, the Council's measures remain insufficient to meet the requirements to end overfishing and rebuild the Gulf of Maine cod stock.

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<sup>17</sup> In addition, in September of 2012 NMFS declared a federal fisheries disaster and for fiscal year 2014 Congress allocated \$32.8 million in federal disaster monies to the New England groundfish industry.

**C. NMFS’s emergency action does not end overfishing for the remainder of the 2014-2015 fishing year.**

Recent emergency actions do not obviate NMFS’ duty to end overfishing and rebuild the Gulf of Maine cod stock. Because the Council refused to propose specific measures to reduce fishing after the August 2014 Assessment Update Report, NMFS implemented emergency action under Magnuson-Stevens Act section 305(c). 16 U.S.C. § 1855(c); 79 Fed. Reg. 67362 (Nov. 13, 2014). But the interim measures will not halt further declines of Gulf of Maine cod.

The emergency action expanded time/area closures and instituted a 200-lb vessel trip limit, which NMFS projected to reduce fishing mortality – including discards – for the remainder of the fishing season by 33% (NMFS, 2014b, Table 55). This is not enough to rebuild the Gulf of Maine cod stock. Indeed, Regional Administrator Bullard acknowledged that the scientific and statistical committee found that a 75% reduction in fishing limits was needed (Bullard, Nov. 10, 2014). As a result, the expected 33% reduction in catch resulting from the interim measures fall far short of what Gulf of Maine cod need to stop declining.

NMFS acknowledged that ending overfishing was neither the goal nor a likely outcome of the emergency action (79 Fed. Reg. 67635; Bullard, Nov. 10, 2014). NMFS did not end overfishing in part because half of the fishing year had gone by and also because adjusting annual catch limits would have impacted businesses (Bullard, Nov. 10, 2014). NMFS found that achieving zero fishing mortality would require closing all fisheries in the Gulf of Maine, including those not targeting groundfish. 79 Fed. Reg. 67365. As drastic as that sounds, NMFS’s justification for allowing yet another year of overfishing – that “the stock can rebuild if subject to overfishing in 2014 and sufficient measures are in place beginning in 2015” – merely perpetuates the delay in reductions that placed Gulf of Maine cod in its current state. *Id.*

**D. The Council’s proposed Framework Adjustment 53 sets Gulf of Maine cod catch above the legal limit.**

The Council’s proposed Framework Adjustment 53 fails to meet Magnuson-Stevens Act rebuilding requirements because it sets a catch limit above the legal limit, i.e. the catch to achieve a fishing mortality that meets rebuilding requirements ( $F_{\text{rebuild}}$ ). Because NMFS’s emergency measures must be replaced by regulations implementing Framework Adjustment 53 before the fishing season that begins in May 2015, the Council approved a proposal in November 2014 that reduced the Gulf of Maine cod catch limit (NEFMC, 2014). While the Council proposed a limit that drastically reduces catch, the proposed 386 mt is nearly double the catch needed to reduce the fishing mortality rate so as to rebuild Gulf of Maine by 2024 (i.e.  $F_{\text{rebuild}}$ ).

Both NMFS’s National Standard One Guidelines and the Council’s Fishery Management Plan prescribe that in a case like Gulf of Maine cod, fishing mortality should not exceed  $F_{\text{rebuild}}$ . 50 C.F.R. § 600.310(j)(3)(ii); *Final Rule Amendment 16*, 75 Fed. Reg. 18262, 18265 (Apr. 9, 2010). First, NMFS’s guidelines indicate that when a stock fails to rebuild in the maximum time

allowed under a plan, fishing mortality should never exceed  $F_{\text{rebuild}}$ . 50 C.F.R. § 600.310(j)(3)(ii) (“If the stock or stock complex has not rebuilt by [the maximum time allowable for rebuilding], then the fishing mortality rate should be maintained at  $F_{\text{rebuild}}$  or 75 percent of the [Maximum Fishing Mortality Threshold], whichever is less.”). Because the Gulf of Maine cod stock failed to rebuild by 2014, the maximum time allowable for rebuilding,  $F_{\text{rebuild}}$  should always be an upper limit on fishing mortality.

Second, the Fishery Management Plan’s control rule specifies that catch “for each stock would be determined as the catch at 75 percent of [fishing mortality that produces maximum sustainable yield, or “ $F_{\text{MSY}}$ ”], and that, if the catch at 75 percent of  $F_{\text{MSY}}$  would not achieve the mandated rebuilding requirements, [catch] would be based upon  $F_{\text{rebuild}}$ .” 75 Fed. Reg. 18265; *see also* NEFMC, 2009, at 78-79.<sup>18</sup> Because the Council’s proposed catch limit would result in a fishing mortality higher than  $F_{\text{rebuild}}$ , further NMFS action is required.

The Council’s proposal does not meet the requirements of the Magnuson-Stevens Act as implemented by the Amendment 16 control rule. The Council’s adopted catch limit of 386 mt exceeds the 200 mt, based on  $F_{\text{rebuild}}$ , that was proposed by the Plan Development Team on Sept. 11, 2014, and provisionally adopted by the SSC on Sept. 15, 2014. The SSC subsequently changed its provisional catch limit to 386 mt for a variety of reasons,<sup>19</sup> none of which justify deviation from NMFS’s guidelines and the Fishery Management Plan control rule.

In fact, NMFS determined after the SSC recommendation that several of those reasons were not appropriate to justify a higher catch limit for Gulf of Maine cod (Bullard, Nov. 18, 2014). First, in adopting the 386 mt, the SSC concluded that “rebuilding this stock in 10 years is unlikely under current conditions” and recommended a catch based on an estimate of bycatch mortality with a reduction (SSC, Nov. 4, 2014). But NMFS came to the conclusion that extending the rebuilding timeline beyond 10 years for management purposes is not warranted (Bullard, Nov. 18, 2014). This determination means that basing catch on incidental bycatch – allowed under the control rule only for stocks that cannot rebuild in the specified period – is inappropriate.

Second, the SSC said that there “remains disagreement within the SSC about the implications for reference points and catch advice when [natural mortality] is assumed to have increased within an assessment” (SSC, Nov. 4, 2014). NMFS pointed out that the 2014 Assessment Update peer reviewers did not accept alternative assumptions of natural mortality,

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<sup>18</sup> After adoption of Amendment 16, two courts upheld the control rule. *Oceana v. Locke*, 831 F. Supp. 2d 95, 131-32 (D.D.C. 2011) (also holding that NMFS’s guidelines in 50 C.F.R. § 600.310 “deserve considerable deference”); *New Bedford v. Locke*, 2011 U.S. Dist. LEXIS 70895 (D. Mass., June 30, 2011), *aff’d by Newton v. Locke*, 2012 U.S. App. LEXIS 24589 (1st Cir. Mass., Nov. 28, 2012).

<sup>19</sup> The SSC lists eight reasons in bullet points, including that 386 mt is below the overfishing limit, is a large reduction from last year’s catch limit (1,550 mt), is below 75 percent of  $F_{\text{MSY}}$ , is below estimates of incidental bycatch, and would still theoretically allow spawning stock abundance to increase (SSC, Nov. 4, 2014).

and the “current biological reference points are based on a natural mortality rate of 0.2” (Bullard, Nov. 18, 2014). Thus, the Council should not have adopted the SSC recommendation for 386 mt because it was based on an extended rebuilding timeline and alternative reference points that were not adopted in the stock assessment.

In short, because the Council has failed to develop and submit, the necessary measures that end overfishing and rebuild Gulf of Maine cod, NMFS must prepare its own regulation to end overfishing and rebuild the Gulf of Maine cod stock by 2024. 16 U.S.C. § 1854(c)(1)(A). Gulf of Maine catch limits must be based on  $F_{rebuild}$  in accordance with the Amendment 16 control rule and NMFS guidelines to prevent overfishing.

#### **IV. NMFS Must Initiate Rulemaking to Prohibit Commercial and Recreational Directed Fishing for Gulf of Maine Cod Stock and Limit Bycatch to Levels Allowing Rebuilding.**

NMFS must end overfishing of Gulf of Maine cod immediately and rebuild the fishery by 2024. As a result of the Council’s failure to propose a catch limit that achieves  $F_{rebuild}$ , NMFS must initiate rulemaking. The catch limit that currently results in  $F_{rebuild}$  is so low that it requires that NMFS end targeted fishing for Gulf of Maine cod. This prohibition on directed catch should remain in place as long as estimates of bycatch exceed the acceptable biological catch levels.

In order to limit catch to a level that achieves  $F_{rebuild}$ , NMFS must not only prohibit targeting Gulf of Maine cod, but must also reduce incidental fishing mortality from all gear that can catch cod in order to meet the statutory requirements. Incidental mortality of cod alone exceeds the catch limit needed to rebuild the stock. The Scientific and Statistical Committee, established to advise the Council, estimates that incidental bycatch currently in the groundfish fishery is between 500 and 600mt, which is close to or slightly greater than the 2015-2017 [overfishing limit] of 514mt” (SSC, Nov. 4, 2014). Even that is likely an underestimate, because “[t]here are additional sources of fishing mortality not included within this estimate, notably bycatch from other fisheries, as well as other uncertainties, and the actual incidental catch is likely to be higher” (*id.*). As a result, NMFS must put into place adequate measures to ensure that incidental mortality of cod is monitored and counted toward catch limits.

One of these measures should be increasing observer coverage to 100%. The current management system of catch limits and sector allocations depends on accurate monitoring of dead discards. The Groundfish Plan Development Team stated that it “remains concerned about the ability for the fishery to stay within the very low [Gulf of Maine] cod [annual catch limit] in FY 2015 and the potential incentive a low [annual catch limit] creates for misreporting or discarding” and “with the large incentive for observer effects that a low [acceptable biological catch] produces” (PDT, Nov. 5, 2014, at 1-2). The Groundfish Plan Development Team recommended that NMFS require 100 percent observer coverage to address this concern:

The PDT recognizes that increasing observer coverage to 100% for the commercial fleet in the GOM would likely be the best way to directly account for all catch in the commercial fishery. Observer coverage at 100% would give the fishery more options with where and how fishing can occur while avoiding GOM cod. Current regulations do not require recreational vessels to carry observers.

(*Id.*). The lack of accurately accounting for dead discards could be one reason that Gulf of Maine cod failed to rebuild from 2004-2014. NMFS must not repeat this error in the rebuilding plan established by Framework Adjustment 51. As stated by the team, the “lack of additional protection could undermine the hope for rebuilding this stock” (*id.*).

In summary, NMFS must initiate rulemaking now to ensure that rebuilding is possible by 2024. Specifically, it must implement catch limits to achieve  $F_{\text{rebuild}}$ , which requires prohibiting commercial and recreational fishing for cod, and provide 100 percent observer coverage to ensure catch limits reduce incidental mortality.

## **V. Conclusion**

The vulnerable status of Gulf of Maine cod – at only 3 to 4% of its target abundance – requires that NMFS take immediate and decisive action to put the stock on the path to recovery. The Magnuson-Stevens Act requires success in rebuilding cod back to healthy levels. Delaying rebuilding and failing to enforce conservation measures to ensure target fishing mortality have not worked thus far for Gulf of Maine cod. The Petitioners therefore request rulemaking to (1) prohibit commercial and recreational catch until the incidental mortality does not exceed the acceptable biological catch limit and (2) limit cod bycatch to the level that achieves the fishing mortality that meets rebuilding requirements, i.e.  $F_{\text{rebuild}}$ . NMFS must promptly respond to this petition and initiate the petitioned-for rulemaking process.

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