



THE ASSOCIATED PRESS/ROBERT F. BUKATY

# The Future of America's First Fishery

Improving Management of the New England Groundfishery

---

Michael Conathan May 2012

Center for American Progress



# The Future of America's First Fishery

Improving Management of the New England  
Groundfishery

---

Michael Conathan May 2012

# Contents

- 1 Introduction and summary**
- 6 A history of management in the New England groundfishery**
- 30 The groundfishery's damaged relationships**
- 38 Making sectors work for the future**
- 49 Conclusion**
- 50 About the author and acknowledgements**
- 51 Endnotes**

# Introduction and summary

Before Christopher Columbus’s grandparents were born, early European explorers from the Vikings to the Basques had already discovered an untold wealth of fish in the corner of the northwest Atlantic now known as the Gulf of Maine. Here the proximity of seemingly limitless stocks of cod that could be readily salted, dried, and transported back across the ocean helped establish communities that laid the groundwork for our modern-day society.

Today there is no more iconic profession in eastern New England than fishing. From the “Ocean State” of Rhode Island, to the Sacred Cod that has hung in the Massachusetts House of Representatives chamber since 1784, to the lobster that epitomizes coastal Maine, fish are integral to New England’s culture and economy.

Today this fishery—which was once so robust, legend says, that fishermen could haul in a healthy catch just by dropping a weighted basket over the side of a skiff—is struggling to recover from decades of overfishing.

Coastal communities throughout New England rely on fishing as a fundamental source of employment, revenue, and cultural identity. And interest in this fishery expands beyond the shores from Eastport, Maine, to Point Judith, Rhode Island. As consumers become ever more educated about their seafood—trying to balance factors such as local sourcing, environmental impacts of different fishing gear, mercury and heavy metal content, and overall sustainability—reestablishing one of the world’s most productive fisheries is of interest to more people than ever before.

This report begins by summarizing management of the northeast multispecies fishery, which is more commonly known as the New England groundfishery and whose participants are referred to as groundfishermen.<sup>1</sup> (These terms will be used throughout this report.) The fishery is comprised of 15 bottom-dwelling species of fish such as haddock, flounders, and the iconic cod, which in some cases are further divided into distinct populations known as “stocks.”<sup>2</sup> Atlantic cod, for example, is managed as Gulf of Maine cod, Georges Bank cod, and Georges Bank cod east.

The document details a sea change that occurred when the groundfishery shifted to a management system known as sector management, or simply “sectors,” at the beginning of the 2010 fishing year.<sup>3</sup> It then provides an overview of looming challenges facing the fishery including the state of fisheries science, how to monitor and oversee the fishery in a cost-effective manner, and how to prevent socioeconomic upheaval in traditional fishing communities during the transition to a new management system intended to end the recent history of overfishing in the region.

The report concludes with recommendations for improving both the management of the fishery and the relationships among fishery stakeholders, which are critical to the fishery’s future.

---

## Today’s management in the groundfishery: Sectors

Sector management, implemented at the start of the 2010 fishing year, is arguably the most drastic change the fishery has undergone since passage of the nation’s first overarching fisheries management law, the Fishery Conservation and Management Act of 1976. At its core, sector management is a form of a so-called “catch share” system. In such systems, regulators set a limit on the overall amount of fish the industry is allowed to catch for the year, which is then partitioned among participating fishermen so each receives a percentage of the total.

Catch share systems in general, and sector management in particular, are highly controversial. Supporters of catch share management point out that by assuring each fisherman that he will have access to a secure percentage of fish annually, the system gives fishermen a long-term stake in the health of the resource. Leaving more fish in the water today will directly benefit the fishermen tomorrow. The idea is that this takes away the perverse incentive to catch every fish as quickly as possible before someone else does.

Yet many fishermen, particularly those who feel initial allocations are not fairly assigned, oppose catch shares on the belief that the systems often lead to consolidation as fishermen accumulate fishing quotas in fewer hands to take advantage of economies of scale. They contend this reduces the number of boats on the water, costing jobs, and threatening communities.

Sector management has just completed its second year of operation. This report will provide a brief overview of year one and compare it to operations under the

previous management system. It will also address common criticisms of sector management and delve into fundamental challenges facing the industry including the increased cost of monitoring operations and a sudden unexpected downturn in the scientific assessment of the health of a key fish stock: Gulf of Maine cod.

A key element of this review will be defining—in admittedly broad, sweeping terms—the positions of various stakeholder groups, including fishermen (both those who support and oppose the system), regulators, politicians, scientists, and environmental groups. By understanding the perspectives of all user groups, we can help to illuminate a path forward, clear the hurdles of the past, and find our way to a mutually beneficial future.

Sector management represents the best hope for the future of this historic fishery. The system has its limitations, and improvements are undoubtedly necessary. Yet there is near-universal distaste for a return to the old system of management—a system where fishing was controlled by limiting the number of days per year fishermen were allowed to fish—and no other viable alternative has emerged, even from those who suggest sector management will result in hyperconsolidation of the fishery into a few hands, financially supported either by corporate entities or environmental groups and foundations.

Ultimately, sector management represents the best hope for the future of this historic fishery.

---

### Troubled relationships in the fishery need to be fixed

The relationships among fishery regulators, scientists, industry members, and environmental groups are more contentious in New England than in any other region of the country. Every one of the groups involved has played a role in the deterioration of these relationships, which in turn has led to the lack of trust among stakeholders in the region.

Beginning in the late 1980s, regulators imposed increasingly strict limits on this historic fishery designed to allow depleted fish populations to recover. Congress bolstered these efforts by enhancing the conservation requirements in law.

Fishermen and their political allies often resisted these efforts, disparaging the science that suggested catch reductions were necessary.

Scientists struggled with imperfect data and the uncertainty of attempting to quantify and understand a resource consisting of a dozen different species that are mostly invisible, highly mobile, and spread across tens of thousands of square miles.

Environmentalists, worried that fish stocks were approaching a tipping point beyond which they might never recover, pushed back against industry efforts to weaken restrictions.

And regulators became ensnared in an escalating maelstrom of conflicting arguments, legal mandates, and increasingly convoluted regulations born of attempts to broker a compromise that could appease a disparate set of stakeholders.

As we attempt to rebuild depleted fish populations, these human relationships now labor in a toxic soup that has poisoned dialogue, expunged trust, and made rational progress all but impossible to achieve. The fundamental source of future success in the groundfishery must start with improved relationships among stakeholder groups. No management structure stands a chance without some degree of buy-in and cooperation of all participants.

---

## Recommendations for improving stakeholder relationships and management

These recommendations will be explained in greater detail in the report, but here are the steps necessary to improve relationships and management strategies for the groundfishery. These will ensure the system can continue to build on the improvements made in its first two years, particularly in light of budget constraints and belt-tightening taking place across the federal government as well as new challenges that have emerged involving scientific review of fisheries and how to collect data that will be integral to the future success. These recommendations will also help overhaul the relationships among the disparate stakeholder groups so rational dialogue can once more take the place of bombastic rhetoric.

- New personnel hired to fill leadership positions within the National Oceanic and Atmospheric Administration—the government agency with jurisdiction over our nation’s fisheries—in the northeast region must prioritize changing the perception of the agency among fishermen and other stakeholders.
- Every stakeholder group, including the National Oceanic and Atmospheric Administration, scientists, fishermen, politicians, and environmental nongovernmental organizations, must take steps to improve communication and make a greater effort to understand the perspective of those who disagree with them.

- All fishery stakeholders must collaborate to improve fishery data collection and analysis to provide more accurate assessments of fish populations and reduce uncertainty that may artificially reduce total allowable catches.
- The National Oceanic and Atmospheric Administration's Northeast Fisheries Science Center must work with fishermen and external organizations to reduce the cost of fishery monitoring, including by developing methods to implement electronic monitoring systems as a replacement or supplement for human fishery observers.
- The National Oceanic and Atmospheric Administration and the New England fishery management council must take steps to analyze the validity of consolidation concerns in the sector management system and address them as necessary, including through exploration and development of permit banks to ensure a geographically diverse group of fishermen retain access to the fishery.



# A history of management in the New England groundfishery

---

## The Magnuson-Stevens Act

The Fishery Conservation and Management Act of 1976, later and more commonly referred to as the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act, was initially conceived as a means of forcing foreign fleets out of our exclusive economic zone, which extends 200 miles from shore. Prior to the law's passage, foreign fishing boats were regularly visible trawling waters as close as three miles off American beaches. In the years that followed, the government subsidized—through a program of low-interest loans—the development of domestic fishing fleets to replace the fishing capacity of foreign vessels no longer permitted to operate in our waters.<sup>4</sup>

As a result, catch of groundfish (referred to as “landings”) by U.S. fishermen soared to unprecedented levels by the early to mid-1980s. Though few fishermen recognized it at the time, this crest was the beginning of a slide that would lead to the severe depletion of a resource that just decades before had been deemed so plentiful that no fishing effort could ever scrape the bottom of the barrel.

Despite ongoing improvements in technology, the amount of fish brought to market began to precipitously decline. In short, there were too many fishermen chasing too few fish. Annual catches of the nine species that today are included in sector management peaked at 159,000 metric tons in 1982, fell to 86,000 metric tons in 1990, and bottomed out at just 25,000 metric tons in 2006—less than one-sixth of its peak harvest level.

As landings plummeted, the scientists' suggestions that fishing had to be curtailed were drowned out by the cry from political forces fueled by fishing constituents eager to replicate the boom years of the 1980s. Fishermen, buoyed by federal subsidies, had invested heavily in business plans that required massive and ultimately unsustainable catch levels in order to be successful. When the government eventu-

ally turned around and told them they had to cut back their fishing to a level that would compromise the viability of their businesses, it planted the seeds of what has blossomed into deep mistrust and resentment.

In addition to outlawing foreign fishing, the Magnuson-Stevens Act also established an innovative and unique management structure. The law divides the nation's fisheries into eight regions and creates a system of regional fishery management councils that develop and approve fishery management plans for each fishery in its given region.

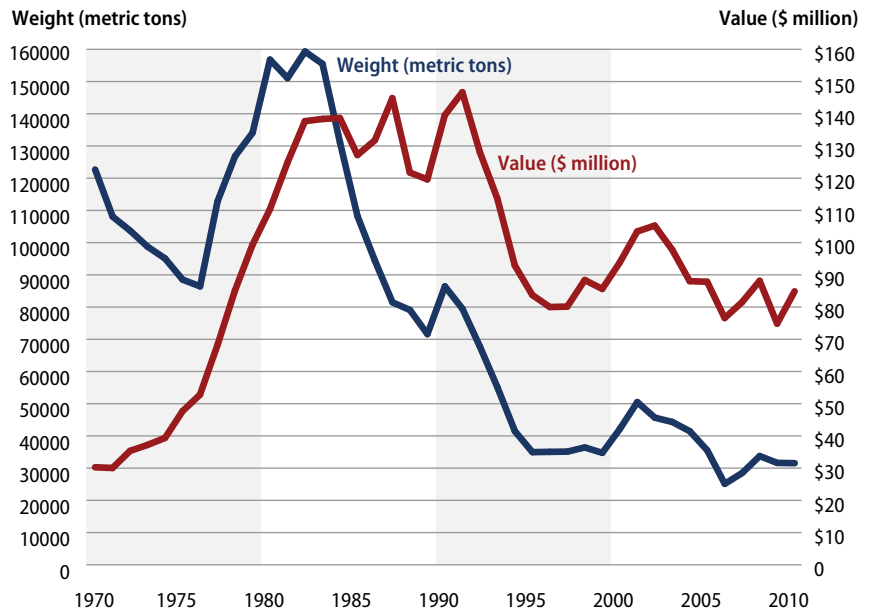
Under the council system, industry members comprise a majority of each council's members, and thus the industry in many ways establishes the regulations under which they will operate.

The New England fishery management council, for example, is comprised of the National Marine Fisheries Service's regional administrator, each state's principal fishery management official, and "qualified individuals" from the commercial, recreational, and charter fishing industries and conservation groups. The nongovernmental pool consists of people nominated by state governors and appointed by the secretary of commerce to ensure a "fair and balanced apportionment."<sup>5</sup>

The members of the regional fishery management councils direct the councils' full-time staffs to flesh out the details of management proposals that ultimately become fishery management plans. These plans are then amended and voted on by council members at public meetings. Once approved, they are sent through the National Marine Fisheries Service—the division of the National Oceanic and

### Fish landings plummet

Fish landings and value in New England groundfishery, 1970-2010



Source: National Oceanic and Atmospheric Administration

Atmospheric Administration and the Department of Commerce responsible for the stewardship of the nation's marine resources and habitat to the secretary of commerce for approval or rejection.

In practice, the secretary will virtually always approve a plan if it meets the requirements of the law. While possible, it is extremely rare for the secretary to disapprove a legal plan.

In addition to annual catch limits and accountability measures, the plan must contain all the parameters that will govern fishing, including countless variables such as:

- The species covered by the plan
- How that catch will be apportioned between commercial and recreational fishermen and among different gear types
- Which gear types are permissible
- The boundaries of open and closed fishing areas
- How bycatch—the accidental catch of nontarget species—will be managed
- How catch accounting will occur

---

## The beginnings of conservation

In its initial iteration, the Magnuson-Stevens Act said little about conservation. But following a series of amendments in the 1980s and early 1990s designed to further Americanize fisheries, strengthen enforcement provisions, and enhance international management methods, Congress and President Bill Clinton at last made conservation a priority with passage of the Sustainable Fisheries Act in 1996.<sup>6</sup> This law took the first significant steps toward identifying and ending overfishing. It also established a controversial requirement to rebuild depleted fish stocks within 10 years except under narrowly defined circumstances.

Opponents of the 10-year timeline argue that the hard deadline is arbitrary and doesn't adequately account for differences in fish biology, environmental conditions, or the inherently uncertain nature of fisheries science. While some conservationists may concede that the time period lacks any scientific foundation, they rightly argue that the law lacked any teeth until the institution of this provision. Managers tended to err on the side of allowing overfishing to continue and hoping for a more positive outlook from the next stock assessment.

## “Overfished” vs. “overfishing”

The terms “overfished” and “overfishing” are obviously related but they have very different meanings in terms of fishery management.

“Overfishing” is the act of catching more fish in a given time period (usually one year) than the population can naturally replace.

“Overfished” refers to a state of being—an overfished fishery means the fish population is below sustainable levels, due to fishing activity.

A fishery can be overfished even if overfishing is not occurring because of overfishing activity in past years. It can be experiencing overfishing without being in an overfished condition because the population is large enough to handle a small amount of temporary overfishing, but continued overfishing will lead to an overfished condition. It also can be both, or it can be neither.

Taking the groundfishery as an example, the New England fishery council repeatedly voted for management plans that, while legal, ignored or cherry-picked the advice of scientists, resulting in restrictions insufficient to curb the rampant overfishing that continued into the early 2000s. The 10-year timeline—with the backing of a handful of judicial rulings—ultimately forced the council to reduce the fishing pressure and give fish stocks a chance to bounce back.

The battle over the 10-year timeline carried over into the most recent debate about reauthorization of the Magnuson-Stevens Act, which concluded in 2006 with the passage of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act.<sup>7</sup> While debate over the 10-year timeline and other conservation issues raged in Congress and delayed passage of the law by several years, the 2006 law ultimately retained the conservation provisions established in 1996 and took significant additional steps.

Specifically, the 2006 law required councils for the first time to set annual catch limits in all overfished fisheries by 2010 and in all other fisheries by 2011 and to establish accountability measures that apply in the event an annual catch limit is exceeded. Further, it included a legal mandate that the annual catch limits cannot exceed scientific recommendations.

A typical accountability measure would be deducting the weight of any fish caught in excess of an annual catch limit from the subsequent year’s catch limit. So if the 2012 catch limit of a species is 10,000 metric tons and fishermen catch 11,000 metric tons, the 2013 catch limit would be reduced by 1,000 metric tons. Additionally,

in fisheries with recreational and commercial components, the annual catch limit for each species must be subdivided between these separate groups.

As noted above, the 2006 Magnuson-Stevens Act reauthorization changed the law to clarify that councils must set catch limits that “may not exceed the fishing level recommendations of its science and statistical committee.”<sup>8</sup> As this committee’s name would indicate, this is the body that analyzes scientific stock assessments and defines how many fish can be caught while either maintaining a healthy stock or, in the case of a fishery that is overfished, keeping the fishery on its rebuilding trajectory to meet its 10-year deadline.

While many of the Magnuson-Stevens Act’s mandates have changed over time, the structure for implementing a fishery management plan outlined in the previous section remains basically intact.

Clearly, the system is convoluted and complex, and when it comes time to make difficult decisions based on science that inherently contains a high degree of uncertainty, it’s easy to see how a management body comprised in large part of representatives of the industry being regulated can be open to conflict-of-interest criticism. Managing a single-species fishery is difficult enough, but looking at the New England groundfishery means attempting to simultaneously balance the needs of more than a dozen species of fish—an exponentially stickier wicket that has led regulators and fishermen through decades of hell.

The 2006 law required councils for the first time to set annual catch limits in all overfished fisheries by 2010 and in all other fisheries by 2011.

---

### Transitions in the groundfishery: From days at sea to sector management

Prior to the start of the 1994 fishing year, the New England fishery management council approved Amendment 5 to the groundfish management plan. Under these new rules fishermen were granted a finite number of days at sea in which they could fish. The idea was that regulators would limit catch by limiting fishing. This began a system that would last 15 years and entrench dysfunctional relationships between fishermen, regulators, scientists, and other fishery stakeholders.

In choosing to manage based on days at sea, regulators bet on an imprecise management system rife with unintended consequences. Ultimately it required an increasingly arcane series of secondary rules to further control fishing activity. From 1994 through 2009, 11 major amendments and 43 lesser changes, called

framework adjustments, followed Amendment 5 to fine-tune the system and close one loophole after another—tweaking gear restrictions, closing areas to protect habitat and spawning grounds, and establishing limits on the amount of fish that could be caught in a day or on a single trip. Ultimately, this system proved cumbersome, inefficient, and at times counterproductive.

For instance, because time (or days) at sea was the commodity, some fishermen opted to overexploit fishing grounds closer to shore, minimizing their travel time to maximize their fishing time. More consistent fishing in these areas obviously affected the fish stocks as well as the ecosystem of these areas.

Managers then imposed a rule asserting that each day spent fishing in certain near-shore areas would count as two days at sea. While this succeeded in reducing effort in what came to be known as the 2-for-1 areas, it proved an excessive burden on small-boat fishermen whose vessels didn't have the ability to travel further offshore.

Trip limits—caps on the amount of a species fishermen could catch during a single day at sea, or over the course of a multiday trip—became particularly contentious because they often forced fishermen to dump large quantities of legal-size fish overboard. The limit on cod, for example, was eventually reduced to 800 pounds per day, but there was no requirement that the fisherman stop fishing when this limit was achieved. So fishermen could continue to fish to get the maximum value from a day at sea by catching other species like haddock and flounder, but they would have to throw back anything more than 800 pounds of cod.

This regulation failed to account for the biology of cod. After it's hauled up from the sea bottom, a cod will likely be dead by the time it hits the deck. The end result was that fishermen were discarding—throwing overboard—dead, marketable cod.

This requirement to throw back legal-size, already dead fish was a major contributor to the industry's frustration over the old management system. Fishermen despised the idea of watching dead, marketable fish drift to the bottom to become lobster food—not just because it was eating into their bottom line, but also because of the effect it was having on the resource.

This period was also rife with lawsuits. Environmental groups alleged the council and National Marine Fisheries Service had failed to achieve the conservation targets established in the law.

The most significant of these suits was brought in 1999 after the New England fishery management council took its first action to implement the 1996 Sustainable Fisheries Act establishing the 10-year timeline for fish stock rebuilding. The suit accused the council and the National Oceanic and Atmospheric Administration of failing to meet the conditions of the law by not setting catch limits at a level that would allow rebuilding of overfished populations within the timeline required by law. In 2001 a judge ruled in favor of the plaintiffs.

The decision in this case forced the New England fishery management council to develop Amendment 13, which took effect in 2004 and set new stricter targets and timelines for rebuilding that met the conditions of the law. It also allowed fishermen to lease days at sea among one another for the first time. In an implicit acknowledgement that the days-at-sea system likely wouldn't achieve its goals or mandates, Amendment 13 also included a provision stipulating that the council would develop a new management system for the groundfishery in time for the 2009 fishing year.

Amendment 13 created the foundation of the next major transition in the fishery. It established a system of approval for fishing “sectors” or groups of fishermen that could organize and petition the council to receive a share of fish based on their catch history in exchange for fishing under a hard catch limit and under a strict plan established specifically to govern participants in that sector. One such sector was specifically named in the amendment: the Georges Bank hook sector, comprised mainly of fishermen from Chatham, Massachusetts, on Cape Cod.

The council then announced in 2006 that it was beginning deliberation on plans for Amendment 16, the management action that would reshape the groundfishery once again by creating a completely new, innovative management system. But in typical fashion the road would not be smooth. By 2008 it became clear that while the council was considering multiple options for new systems to replace days at sea, its work would not be completed in time to begin the next fishing year on May 1, 2009.

Back in 2004 the National Oceanic and Atmospheric Administration had only approved the provisions in Amendment 13 because they were tied to the understanding that 2009 would mark the transition to a new—and theoretically better—system. Thus, in the absence of a new system, the council's inability to complete its work meant the agency would be forced to implement an interim rule by executive action that would drastically reduce each fisherman's days at sea to potentially fewer than 20 for the entire year in order to keep landings at a level that would achieve the rebuilding target.

Before the start of the 2009 fishing year, the New England congressional delegation brokered a deal with the National Oceanic and Atmospheric Administration, the New England fishery management council, and environmental groups that avoided the drastic cuts to days at sea and allowed the council one more year to finish its work on Amendment 16.

On January 21, 2010, the National Oceanic and Atmospheric Administration formally approved Amendment 16 to the Northeast Multispecies Fishery Management Plan, ushering in a new era in New England groundfish management.

On April 30, 2012, the fishery completed its second year under sector management, and while there are ample detractors of the system who decry what they perceive as its tendency to consolidate fishing activity at the expense of some fishing communities, one thing is certain: In the first year of the plan, the portion of the groundfishery operating under sector management did not exceed its annual catch limit on any species.



## Timeline: History of the New England groundfishery

1976	Congress passes the Fishery Conservation and Management Act.
1977	The first fishery management plans for groundfish species take effect. With no limit on how many fishermen can participate, the plan incentivizes fishing as quickly as possible. The cod fishery closes within five months and the haddock fishery within six months when catch limits are hit.
1982	The interim groundfish fishery management plan is implemented. Catch limits are abandoned in favor of gear restrictions designed to make fishing less efficient.
1984	The U.N. World Court sets the boundary between the U.S.-Canadian exclusive economic zones, dividing the richest fishing grounds on Georges Bank between the two countries.
1986	Individual groundfish species are managed jointly for the first time under a multispecies fishery management plan. It includes witch flounder, plaice, pollock, and winter flounder.
1990	Congress passes the Magnuson Fishery Conservation and Management Act. It is the first legal acknowledgement of the need for scientific data to establish the health of fish stocks.
1994	Amendment five to the multispecies fishery management plan establishes days-at-sea management in the groundfishery with the goal of reducing fish mortality by 50 percent from 1993 levels.
1996	Amendment seven to the multispecies fishery management plan reduces the total number of days at sea and establishes rebuilding targets for yellowtail flounder, cod, and haddock.
1996	Congress passes the Sustainable Fisheries Act. It focuses on eliminating overfishing, sets a 10-year deadline to rebuild overfished stocks, and requires fishery managers to consider the socioeconomic impacts of fishery management decisions.
1999	Amendment nine to the multispecies fishery management plan sets catch limits for 12 groundfish stocks in an attempt to bring the plan into compliance with the Sustainable Fisheries Act.
1999	Environmental groups sue the U.S. Department of Commerce for failing to meet the Sustainable Fisheries Act requirements. The U.S. District Court rules in favor of environmentalists in 2000.
2004	Amendment 13 to the multispecies fishery management plan is implemented. It acknowledges overfishing, sets new rebuilding timelines, and allows trading of days at sea among fishermen for the first time.
2006	The New England fishery management council releases a notice of intent to prepare amendment 16 for implementation in 2009, which ultimately leads to sector management.
2006	Congress passes the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act. It further strengthens environmental safeguards and requires annual catch limits for all fisheries by 2011.
2008	The New England fishery management council announces it will not complete work on amendment 16 on schedule. The National Marine Fisheries Service is forced to implement an interim rule for the 2009 fishing year.
2009	Amendment 16 passes, implementing sector management for the 2010 fishing year.
2010	A provision of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act takes effect requiring all fisheries subject to overfishing—including the groundfishery—to implement strict annual catch limits and accountability measures in the event that limits are exceeded.
May 2010	Sector management begins.
2011	A provision of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act takes effect requiring implementation of strict annual catch limits in all fisheries regardless of overfishing status.

NOTE: Dates shaded in blue represent actions and developments at the federal level. Unshaded dates are specific to the New England groundfishery.

---

## How sector management works

At its core, sector management allows fishermen the option of operating under a catch share system in which regulators set an overall amount of fish the industry is allowed to catch for the year, and the annual catch limit is then partitioned among participating fishermen so each receives a percentage of the total. Fishermen have the choice to either join and operate in self-selecting catch share cooperatives called sectors in which fishermen pool their allocations, or fish independently using the old days-at-sea system.

Fishermen who choose the latter option are referred to as being in the common pool. But there aren't many of them. By the time Amendment 16 was implemented, the days-at-sea system was resoundingly considered a failure. Furthermore, regulations on common-pool fishermen are more conservative than for those operating in sectors due to the greater uncertainty of estimating landings based on fishing as opposed to counting the actual amount of fish caught. As the 2010 fishing year wore on, the already tight regulations on common-pool fishermen became increasingly stricter, and this inspired many fishermen to join a sector the following year. In 2010 more than 98 percent of the catch history in the fishery ended up in sectors, and that percentage increased to 99 percent in 2011.<sup>9</sup>

This report focuses on the 99 percent of fishermen who operate under sector management. Each sector is comprised of a self-selecting group of fishermen, usually with some commonality—gear type, home port, or vessel size. When fishermen form a sector, they establish a management plan with ground rules that must then be approved by the National Marine Fisheries Service.

Each permit in a sector is allocated a percentage of each species' total allowable catch based on a formula that accounts for the catch history affiliated with that permit from 1996 to 2006. This percentage is affixed to each permit in perpetuity unless the council votes to change the initial allocation formula.

In simplified terms, this means that if a fisherman caught 1 percent of all the Georges Bank cod harvested during the period of time used to calculate the permit's catch history, 1 percent of each year's annual catch limit for that species will be assigned to his permit every year he participates in a sector for as long as the sector management system is in place. This percentage of fish, referred to as the "annual catch entitlement," only becomes effective once the permit holder agrees to join a sector, at which time the entitlement becomes the sector's, not the fisherman's.

Sector management gives fishermen the choice to either join and operate in self-selecting catch-share cooperatives called sectors in which fishermen pool their allocations, or fish independently using the old days-at-sea system.

While this sounds like a technicality, it is a critical point. The 2006 reauthorization of the Magnuson-Stevens Act included a provision allowing councils and the National Oceanic and Atmospheric Administration to implement catch share programs, which the law refers to as limited access privilege programs. This provision of the law includes a requirement for the council to conduct a referendum of permit holders before implementing such a program in either New England or the Gulf of Mexico. But because sectors rather than individual fishermen hold the quota, the system does not technically include an individual fishing quota. Still, each sector must decide how to allocate its quota among its fishermen, and it should come as no surprise that the most common manner of doling out quota to sector members is to assign them the amount of fish that their permit or permits brought into the sector. But because sector management does not constitute a limited access privilege program, no referendum was required.

Opponents of the sector system, led by the cities of New Bedford and Gloucester, challenged this finding in court, claiming the National Oceanic and Atmospheric Administration relied on a convoluted interpretation of the law to get around the referendum requirement. They would like to see the sector management system invalidated because if it remains in place they feel it will result in a loss of fishing jobs, particularly for fishermen operating smaller vessels. In June 2011 a district judge upheld the legality of sectors as established in Amendment 16.<sup>10</sup> The plaintiffs are currently appealing that decision.

Once the sector determines how to allocate its fish, the members can catch their fish in as many or as few days as they are able provided they operate within the ground rules set by the sector's bylaws. One new and consistent regulation across all sectors is that fishermen must keep every legal-size fish they catch. This eliminates all legal-size discarding, which was rampant under the days-at-sea system with its strict trip limits.

The fishermen in a sector become jointly and severally liable for any overage, or catch in excess of the sector's annual catch entitlement, which helps them become self-policing. Each sector has a manager responsible for reporting their catch to the National Marine Fisheries Service on a weekly basis. These figures are verified by monitors on board roughly 25 percent of the vessels and via reports from licensed fish dealers. These data are then verified by the National Marine Fisheries Service.

Sectors can also trade quotas with other sectors, though some have implemented an internal right of first refusal in the event a fisherman wants to lease out his fish.

Fishermen in the common pool do not receive quotas from their permits. Instead, they receive an amount of days at sea that they can then use under a different set of restrictions.

As previously mentioned, those restrictions were exceedingly tight in 2010. When the fishing year started on May 1, each common-pool fisherman had an average allocation of 24.2 days at sea for the entire year, and he faced trip or daily limits on seven different fish stocks. Things very quickly went from bad to worse as fishermen were catching more fish earlier in the season than regulators anticipated.

In order to keep the common-pool fishermen on track to stay within their catch limits, on July 20 the trip limit on Gulf of Maine cod was reduced by 75 percent. Then, on September 2, regulators began counting days at sea on a 2-to-1 ratio, meaning those 24.2 days at sea were now worth just 12.1 days. On September 22 the Gulf of Maine cod trip limit was reduced by an additional 50 percent, the Georges Bank yellowtail flounder trip limit was cut by 96 percent, and the daily limit on white hake was cut by 95 percent.

After operating under days at sea for years, most fishermen understood that the restrictions on their fishing would be severe, but few who opted to remain in the common pool or couldn't find a sector to join expected the restrictions to be as harsh as they were. The result is that less than 1 percent of the potential annual catch estimate for 2011 was granted to fishermen who opted not to join a sector.

---

### Criticisms of sector management

Sector management was already wildly unpopular with a segment of the fishing industry even before it took effect.

The most prevalent criticism of sector management is that it is causing widespread fishing consolidation in fewer vessels in the fishery. In particular, smaller fishing operators, primarily in New Hampshire and Massachusetts, express grave concerns with the council's failure to impose accumulation limits capping the amount of quota a sector or group of sectors can control.

Sector opponents point to a statistic in a National Marine Fisheries Service report about the first year under sectors: Approximately 20 percent of groundfish vessels

The most prevalent criticism of sector management is that it is causing widespread fishing consolidation in fewer vessels in the fishery ... but, for vessels operating under sectors, there was actually less revenue consolidation in 2010 than in 2009.

accounted for 80 percent of the revenue, while in 2009, the last year under days at sea, 68 percent of the revenue went to the top fifth of fishing boats.<sup>11</sup>

But looking back further than 2009 shows that from 1996 to 2007 the top 20 percent of vessels landed 78 percent of the fish, much closer to the 2010 distribution. Further, the top 20 percent of vessels fishing under sector management in 2010 (representing 98 percent of the total allocation of groundfish) accounted for just 67.3 percent of sector revenues.<sup>12</sup> Thus, for vessels operating under sectors, there was actually less revenue consolidation in 2010 than in 2009.

It's unquestionable there are fewer boats fishing primarily for groundfish now than there were in years past, but this reality represents a more-than-decade-long trend that's independent of sector management. From 2001 through 2009 the total number of vessels in the groundfishery declined by 54 percent. That trend continued under sectors but has not accelerated, and it is not directly related to the sector system. Rather this consolidation is a direct result of past overfishing.

Recall that in the late 1970s and early 1980s, the government subsidized the growth of the domestic fishing fleet after the original Fishery Conservation and Management Act pushed foreign fishing pressure out of our exclusive economic zone. As a result there were more boats on the water fishing more efficiently than fish populations could support. This increase in fishing pressure led to political pressure on fishery managers to set limits that were likely to be unsustainable over the long term. Then as regulators, prompted in some cases by lawsuits, reduced catch limits to end overfishing, fishermen were faced with catch restrictions that made their businesses not economically viable. They fought back by convincing their elected officials to apply political pressure, which resulted in catch limits remaining too high and ultimately the perpetuation of overfishing.

This vicious cycle came to a close in 2010. In addition to being the first year of sector operations, 2010 was also the first year regulators were required to impose strict, science-based annual catch limits in the fishery, including accountability measures in the event a limit was exceeded. This requirement, completely independent of sector management, meant that not only did fishermen have to adjust to a new management system, but their ability to fish would be further restricted. And this would have been the case no matter what system was in place.

Still, many members of the media have seized on fishermen's arguments as a textbook story of big government cracking down on the small-business owner—in

this case, the small-boat fisherman. Their perspective is espoused vociferously in the *Gloucester Daily Times*—a news outlet whose coverage has become severely slanted against the National Oceanic and Atmospheric Administration and its current administrator, Dr. Jane Lubchenco. Its editorials resoundingly castigate the agency’s decisions and have gone so far as to single out Lubchenco as a “tunnel-visioned pseudo-scientist.”<sup>13</sup>

Massachusetts politicians hold up their constituents’ concerns as proof that the National Marine Fisheries Service’s tone-deafness remains acute, and its policies, including promotion of catch shares, are putting fishermen off the water.

This attitude has led to a series of contentious hearings in both the House and Senate and caused some elected officials to advance ill-conceived legislation, including the Saving Fishing Jobs Act of 2011, a bill introduced by Sens. Kelly Ayotte (R-NH) and Scott Brown (R-MA) that would invalidate any catch share management system if it results in the loss of more than 15 percent of jobs in a fishery.

In addition to such legislation—and the lawsuit filed by the cities of New Bedford and Gloucester aimed at invalidating Amendment 16 because no referendum was conducted prior to its implementation—numerous other criticisms have been leveled at sector management since its implementation.

One of the most prevalent allegations is that sector management is Lubchenco’s brainchild, and that her administration has forced catch shares on the fishery. But while the agency certainly made development of catch shares in U.S. fisheries a priority, Lubchenco’s policy preferences have little to do with the council’s decision to develop sector management.

Amendment 13 established the first sectors in 2004, and the New England fishery management council announced its intention to develop sector management in Amendment 16 in 2006—two years before Lubchenco’s confirmation as NOAA administrator. The council, the agency, and other stakeholders worked on development of the system for more than three years, holding more than 61 public meetings before putting the final measure to a vote in June 2009. Numerous alternatives to sector management were considered and ultimately rejected. And in the end the council approved the final measure by a vote of 15-1.

Meanwhile, the National Marine Fisheries Service made a legitimate commitment to make sector management work. Since 2009 the agency has:

- Spent more than \$47 million on programs to ease the transition to sector management, including paying for monitors and observers in the fishery, and supporting development of sector management plans, science and stock assessments, and research on new gear types<sup>14</sup>
- Supported the successful work of the New England congressional delegation, led by Sen. Olympia Snowe (R-ME), to enact legislation clarifying a technicality that gave a competitive advantage to Canadian fishermen in a shared area of Georges Bank, historically among the richest fishing grounds in the Gulf of Maine<sup>15</sup>
- Increased total allowable catch levels whenever the science permitted, including boosting the harvest limit for pollock, a critical component of the fishery<sup>16</sup>
- Shelved a proposal to implement a new research area closed to fishing within the Stellwagen Bank National Marine Sanctuary when data showed the action could cost up to 123 fishing jobs
- Committed to fund 100 percent of the cost of at-sea monitors and observers for the 2012 fishing year—an expense projected to save the industry millions of dollars

At the same time, there were missteps on the National Oceanic and Atmospheric Administration's part that while perhaps no more than symbolic provide fodder to those who don't believe the cooperative spirit is credible.

For instance, after testifying at a field hearing of the U.S. Senate Committee on Commerce, Science, and Transportation in Gloucester in October 2011, called to review Massachusetts fishery management plans, Lubchenco left the hearing before the second panel of witnesses—comprised of the Massachusetts director of marine fisheries, two local fishery scientists, the New England council chairman, and a local fisherman—completed its testimony.

Lubchenco's early departure, while common practice at hearings in Washington, was trumpeted by antisector fishermen and their allies as evidence that the agency has no interest in anyone's perspective but its own.

Partly in response to these criticisms and the momentum seemingly building toward an overhaul or even abandonment of sectors, in November 2011 a group of more than 100 fishermen sent a letter to the New England congressional delegation suggesting that the key to a functional future for their fishery is management

stability. As such, they asked that sector management remain in place, but they also stipulated several areas that could be improved including increased opportunities to target robust stocks, reduced cost of operations, and additional funding for stock assessments and science.<sup>17</sup>

This last concern—access to adequate funding for fishery stock assessments—is poised to become a major sticking point for sector management and the future of the groundfishery in light of the Gulf of Maine cod stock assessment bombshell that exploded in November 2011. The next section of this report will examine the fallout from that assessment and address additional challenges to the future of sector management.

---

## Results of sector management's first years

Fishermen hold vastly diverse opinions about whether or not sector management has been an improvement over previous systems, though it's telling that virtually no one supports a return to days-at-sea management.

To cite one example, in 2011 the Gulf of Maine Research Institute, an independent marine science center, conducted polling to gauge fishermen's perception of the system in its first year. According to the results of their study, a plurality of fishermen (46 percent) felt they were better off under sectors than they would have been under days at sea. Thirty-six percent believed they were worse off. Yet despite making fewer trips, nearly three-quarters of respondents reported an increase in operating costs, citing higher fuel prices and the cost of leasing quotas as the most increased expenses. Additionally, 55 percent reported a decrease in revenue for the year.<sup>18</sup>

The overlap in percentages of those who felt they were better off under sectors despite decreasing revenue shows once again just how ineffective the days-at-sea system had become. Even some fishermen who lost money acknowledged they would have lost more money if days-at-sea had remained in place.

According to the Gulf of Maine Research Institute's polling, nearly all sector members who fished in 2010 planned on remaining active in 2011, and many fishermen who joined a sector but leased out all their quota plus a significant portion of active common-pool members planned on joining them.<sup>19</sup>



The preponderance of fishermen who continue to participate in sectors suggests that they recognize value in the system, though no one disputes that there is ample room for improvement in the coming years as fishermen and regulators adapt.

The National Oceanic and Atmospheric Administration’s Northeast Fisheries Science Center also issued a report on trends in the groundfishery in the first year under sectors that showed mixed results. While it appears sector management did not reverse all the negative trends in the fishery—such as declining numbers of vessels participating—it also didn’t accelerate any of those trends. The price fishermen received for their catch was higher on average than in years past, so despite catch levels being lower, gross revenues were nearly equal to 2009.<sup>20</sup>

Neither of these studies, however, could completely address the effect sector management had on net revenues to vessel owners or crew. While the National Marine Fisheries Service keeps statistics on the value of fish landings, it does not track expenses, so there are no concrete data on whether fishermen are making more money under sectors than they were under days at sea.

The Gulf of Maine Research Institute’s survey found nearly three-quarters of respondents “reported an increase in operating costs compared with [days-at-sea]” with the most frequently mentioned factors being “increased fuel, quota leasing, and landing costs.” Further, 55 percent of respondents reported “a decrease in annual revenue (a third indicate dramatic revenue loss), while 24% reported increased revenue.”

It is unclear what portion of these changes are attributable to sectors (i.e. leasing costs) and what portion would have occurred regardless of the change in management (i.e. fuel and reductions in annual catch limits).

While full-year data is not yet available for fishing year 2011, many of the trends evident in 2010 appear to have continued. In 2011, 11 of the 16 sector-managed stocks saw their annual catch limits increase while the other five declined. But none of the reduced catch limits was for a stock that came close to its catch limit in 2010, so these reductions have not significantly changed fishermen’s behavior.

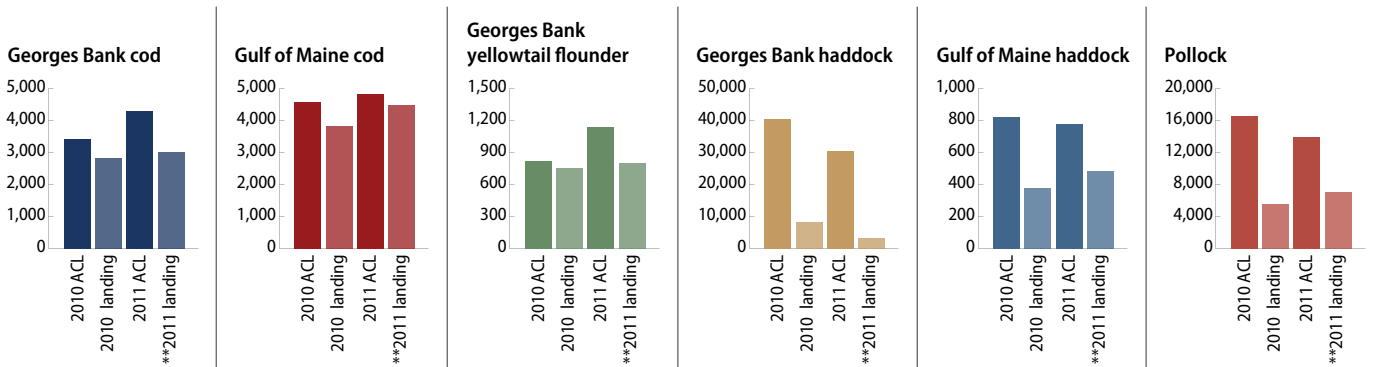
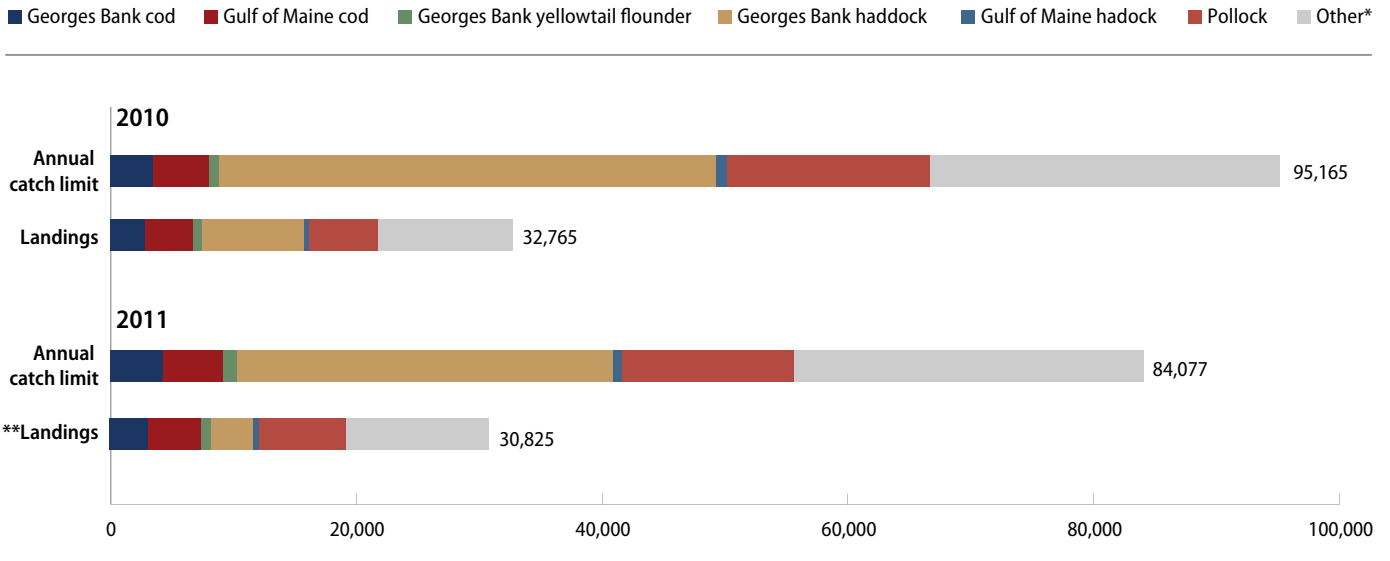
The sum of the annual catch limits in 2010 was about 95,000 metric tons, of which fishermen caught 32,000 metric tons or slightly more than a third. For 2011 the sum of catch limits was cut back to 84,000 metric tons. Of that reduction 9,000 metric tons came off the catch limit for Georges Bank haddock, but this reduction

The preponderance of fishermen who continue to participate in sectors suggests that they recognize value in the system, though no one disputes that there is ample room for improvement.

has not affected fishing activity. Fishermen caught just 20 percent of their allowed haddock in 2010, and through the first 11 months they have only caught 11 percent of their new, lower allocation.

**FIGURE 2**  
**Catch limits not exceeded**

New England groundfishery annual catch limits and landing by species, 2010-2011



\* Other includes Georges Bank cod east, Plaice, Georges Bank winter flounder, Gulf of Maine winter flounder, Witch flounder, Cape Cod/Gulf of Maine yellowtail flounder, Southern New England yellow tail flounder, Georges Bank haddock east, White hake, and Redfish  
 \*\* 2011 landings through March 31, 2012  
 Source: National Oceanic and Atmospheric Administration

---

## Looming challenges

This section will examine two major hurdles to sector management in the ground-fishery: establishing catch limits based on sound science that simultaneously provide a semblance of stability to fishermen, and providing adequate monitoring of fishing activity that ensures those limits are being followed.

### Regulatory uncertainty

For the most part fishermen understand there is a certain amount of natural fluctuation built into their chosen profession. When they leave the dock, they never know how they'll do. As any recreational angler knows, some days the fish are biting, some days they're not. But what frustrates them most is dramatic variability in regulations that takes place before they even get out to sea.

This is of particular concern in a catch share fishery that essentially amounts to a cap-and-trade system. At its most basic level, a catch share system is one in which regulators set a limit on overall amount of fish the industry is allowed to catch for the year. This annual catch limit is then partitioned among participating fishermen so each receives a percentage of the total. Fishermen then decide to either catch their portion of the quota or sell or lease it to other licensed fishermen.

Their business plans are based on how much of a given species they think they can catch, and executing these plans requires a certain amount of in-year stability so they can decide whether to lease their quote or try to catch it. They also must decide whether or not they want to buy or sell permits, and these decisions require some semblance of longer-term stability—even more so if the fisherman doing the buying needs a bank to back him with financing.

A couple of recent examples have illuminated some of the difficulty inherent in providing fishermen sufficient stability while requiring them to adhere to strict, science-based annual catch limits.

In 2010, the first year of sectors, the catch limit for pollock was set at just less than 2,500 metric tons. As fishing began, fishermen were terrified of this cap, as they were certain the pollock stock was far healthier than scientists thought, and as a result they wouldn't be able to avoid catching that relatively small amount of fish

quite rapidly. Of course, once they hit that cap, their sectors would have to shut down as stipulated in the management plan.

The National Oceanic and Atmospheric Administration heeded fishermen's warnings and agreed to accelerate its new stock assessment of pollock. Sure enough, it found that the population was in much rosier shape than the old assessment had predicted. As a result they were able to make an in-season adjustment and raised the catch limit to more than 16,000 metric tons—more than a 600 percent increase.<sup>21</sup>

The pollock limit increase was greeted with tremendous relief by fishermen and their elected representatives but there was also an undercurrent of mistrust and annoyance. Some fishermen had already paid to stockpile pollock quota, betting that a pollock increase wouldn't come and they would then be able to cash in on selling off the valuable harvest rights at a premium. Further, the fact that the initial estimate was so far off the mark did anything but inspire confidence in the Northeast Fisheries Science Center's ability to correctly assess the health of fish stocks.

The pollock situation may have left a bad taste in some fishermen's mouths but it was nothing compared to the next surprise announcement from the science center.

In the second year of sectors, managers increased catch limits on 12 groundfish stocks, including the iconic Gulf of Maine and Georges Bank cod. For a brief moment it appeared the New England groundfishery was at long last on a track—albeit a bumpy one—to long-term viability.

According to the previous stock assessment in 2008, Gulf of Maine cod in particular looked like a marvelous success story. According to data, including samples collected in the National Oceanic and Atmospheric Administration's research tows, it appeared the species experienced a bumper crop of juveniles in 2005, which meant the fish and the fishery's future looked rosy. Regulators increased catch limits accordingly and the prospects were good that the stock would be fully rebuilt by its target date of 2014.<sup>22</sup>

Yet when scientists updated that assessment in 2011, it showed the 2008 assessment was nothing but a mirage. The supposed boom year of 2005 turned out to be no more than a couple of lucky research tows that had been given too much weight by researchers. This error combined with new, finer-scale data on commercial and recreational landings led to a new, far gloomier assessment leaving effectively no chance that the species will meet its 2014 deadline.<sup>23</sup>

According to the previous stock assessment in 2008, Gulf of Maine cod in particular looked like a marvelous success story ... Yet when scientists updated that assessment in 2011, it showed the 2008 assessment was nothing but a mirage.

The only thing preventing the New England fishery management council from a legal mandate to effectively shut down the fishery is a clause allowing the secretary of commerce to “promulgate emergency regulations or interim measures necessary to address the emergency or overfishing.”<sup>24</sup> In January 2012 the council formally requested and received such secretarial intervention, which allowed the National Oceanic and Atmospheric Administration to implement an overall catch limit of 6,700 metric tons for Gulf of Maine cod. This translates to about 4,000 metric tons for sector fishermen, with the remainder distributed among common pool fishermen, recreational fishermen, and to bycatch in other fisheries. While this limit represents a 22 percent reduction from the 2011 level, it is still far higher than the law would otherwise require.

In 2010 fishermen caught more than 4,500 metric tons of Gulf of Maine cod, and in the first 11 months of 2011, they had already caught more than 4,400 metric tons, meaning their final harvest would likely be close to their limit of 4,800 metric tons by year’s end. Therefore, even a 4,000-metric-ton cap in 2012 will necessarily lead to reduced fishing for all groundfish stocks.

This reduction will likely hit small-boat fishermen especially hard. Smaller boats, also known as dayboats, are not equipped to make the multiday trip out to Georges Bank, so they must rely on the stocks closer to shore in the Gulf of Maine. As these restrictions become tighter, inshore dayboats will find it harder to make ends meet.

The cut is troubling enough for the fishery’s economic outlook in 2012 but looms larger in 2013 and beyond. The Magnuson-Stevens Act only allows an emergency or interim action to remain in place for one year. It’s designed as a pressure-relief valve that allows fishery management councils time to react and adapt to sudden surprising revelations. Now the council must use the next few months to develop a new rebuilding plan for the stock including a catch limit for 2013 that will meet scientists’ recommendations for how to put the fish on a rebuilding trajectory that will lead to sustainability. Absent any legislative intervention from Congress or unprecedented creativity on the part of fishery managers, the levels required to achieve the target for 2013 and beyond may be so low that they will jeopardize the viability of the entire fishing fleet.

The National Oceanic and Atmospheric Administration released new numbers in March for Georges Bank cod and 10 other stocks in the groundfishery. While none of the new assessments is as horrible as the Gulf of Maine cod catastrophe,

the new assessment estimates that there is 46 percent less Georges Bank cod than scientists believed existed in 2008.<sup>25</sup> While the council could request another interim or emergency action on Georges Bank cod for 2013, such an action would not make much difference as fishing will already be constrained by the expected low levels of Gulf of Maine cod.

This challenge of setting catch limits based on science that also meet fishermen's economic needs will have to be dealt with going forward.

### Effective oversight

Fishermen must adhere to scientific restrictions if they are to achieve their intended outcome of rebuilding depleted fish populations. Ensuring fishermen do so is one of the fundamental difficulties of implementing the management system.

Though the days-at-sea system was inefficient at precisely limiting catch, it was relatively easy to police. Fishermen had to report to the National Marine Fisheries Service when they were going out, and each boat was equipped with a vessel-monitoring system that allowed the Coast Guard and NMFS to confirm the vessel's location. In effect, regulators simply had to establish whether the boat was fishing or not and make sure it stayed out of closed areas. Then when the boat landed its catch, the regulators could confirm that it had not exceeded its trip limit (the amount of a given species allowed to be caught per day of fishing) for any species that had one, and that was that.

Under sectors, each fish caught must be counted not just against the overall catch limit for that species but against each sector's allotment as well. The system also requires fishermen to keep every legal-size fish they catch. In the past fishermen would often throw back a portion of their catch either because they already reached their trip limit for a particular species or in some cases because they wanted to fill their hold with higher-value fish. The requirements of sectors mean more data must be collected about each trip and fed back into the management system.

In short this means fishermen's activities on the water must be more closely monitored for compliance with regulations as well as for scientific purposes. There are actually two different categories of at-sea monitors in the groundfishery—fishery observers who oversee operations and also collect data for scientific stock assess-

The levels required to achieve the target for 2013 and beyond may be so low that they will jeopardize the viability of the entire fishing fleet.

ments, and at-sea monitors who lack the scientific training to collect usable data and focus exclusively on regulatory compliance.

At-sea monitors are used regularly in many fisheries and they have been part of the groundfishery in the past as well. But under sector management their presence has been increased. In 2012 fishermen are required to have observers on 17 percent of sector trips in addition to the 8 percent of trips carrying scientific observers.

Scientific observers are more expensive than monitors, with costs per day estimated at \$1,487.22 for the former compared to \$917.65 for the latter.<sup>26</sup> To date, the National Oceanic and Atmospheric Administration has covered 100 percent of the costs of observers for sector fishermen, but the industry had to fight to ensure federal funding would continue through 2012, the third year of the program. There is no guarantee such support will be forthcoming in future years.

These costs represent a major obstacle to sectors, and until the conversation about the new stock assessment of Gulf of Maine cod rose to prominence, monitoring costs were considered the single-biggest hurdle for the system. While cod has ascended to claim the dubious honor of the fishery's primary threat, the monitoring issue has not gone away and will remain a problem in search of a solution.

In addition to the added cost, bringing observers on board vessels can result in personal difficulties. Some fishing boats are as small as 40 feet or less, so when these vessels take overnight trips offshore, the presence of an extra person can be an inconvenience and even a safety hazard given the limited amount of space both above and below deck. Even on larger boats, personality conflicts—or worse—can arise. In February 2011 a Gloucester fisherman was indicted on charges he assaulted and sexually harassed a female observer at sea.<sup>27</sup> Such cases have occurred in other regions of the country as well.

One way to reduce the need for human at-sea observers and monitors is by developing electronic or video monitoring techniques. Such a system involves installing cameras on vessels that record what happens on deck when fishermen are working. Cameras document what fishermen discard, what goes into the hold, and essentially take the place of human observers.

In such a system the monitor's job would migrate from the boat to shore. Instead of going to sea, he or she would sit in a room and watch a randomly selected sample of the video recorded on a given trip. If the video shows any anomalies or

suggests violations, the vessel owner would then be responsible for paying for that trip's entire video record to be reviewed. Such systems are being developed for use in numerous other fisheries including the Pacific groundfishery, and halibut and pollock fisheries in Alaska, and have been successfully implemented in multiple fisheries in Canada and internationally.<sup>28</sup>

The complexities of the multispecies groundfishery will make development of a successful electronic monitoring system difficult, but the Northeast Fisheries Science Center is already conducting a pilot study.<sup>29</sup> Expectations are mixed: Many participating fishermen are excited about the possibilities but some scientists in charge of the project seem skeptical.

As reluctant as fishermen may be to welcome the unblinking eyes of video cameras aboard their vessels, the majority will find it preferable to hosting another body, particularly on smaller vessels where every square inch of space is at a premium. Given the already complex relationships among fishermen, regulators, scientists, and other fishery stakeholders; complaints from captains about observers showing up late, getting seasick, and otherwise affecting their operations; and counter-complaints from observers about their treatment at the hands of some fishermen, replacing human observers with cameras could easily be a winning formula.



# The groundfishery's damaged relationships

The relationships among fishery regulators, scientists, industry members, and environmental groups are more contentious in New England than in any other region of the country. Future success in the groundfishery must start with improved relationships among these groups. Any management structure will face an uphill battle without the buy-in and cooperation of all stakeholders.

NOAA Administrator Jane Lubchenco admitted in a dialogue with Sen. Olympia Snowe (R-ME) during her confirmation hearing in 2009 that the relationships were “seriously dysfunctional.” Lubchenco and Sen. Snowe agreed that it was time to create a new “climate of trust” in the region.

Fishermen, particularly in Massachusetts, have been fed a complex cocktail of vitriol by elements within the local media that continually play up Lubchenco's ties to environmental nongovernmental organizations. They mention at every opportunity her previous position on the board of the Environmental Defense Fund, an organization that advocates aggressively for implementation of catch share management.

Until some much-needed perspective is brought to bear and such groundless conspiracy theories are discredited and abandoned, there will be an undercurrent of mistrust in the industry that does a disservice to everyone involved.

Every one of the groups involved has abetted the deterioration of these relationships, which in turn has led to the lack of trust among stakeholders in the region. The following are broad generalizations of the roles each group has played in the process. There are ample grey areas within each category but here is an overall perception of the situation showing how each group has contributed to the absence of trust in this fishery.

---

## Fishermen

For far too long, fishermen, including their representatives on the council, resisted the clear need to make hard decisions by reducing catch limits when the science showed that stocks were declining. They accused scientists of failing to collect decent data and suggested that what they were seeing on the water didn't agree with the increasingly dire stock assessments.

Instead of striving to understand peer-reviewed science and heeding the warnings that their actions would only dig them into a deeper hole and reduce future catches, fishermen often opted to put faith in the rosier possible scientific predictions. The New England fishery management council typically set catch restrictions at or even above the most lenient levels within the range of the scientific estimates even in the face of warnings that the probability of such parameters resulting in stock rebuilding was extremely low. They would then hope that the next stock assessment would show a brighter future. When this process failed, they blamed scientists for shoddy work and managers for imposing excessively harsh regulations.

---

## Regulators

Regulators, often constrained by the tangled red tape of bureaucracy, failed to adequately explain their motives and methods in a manner the fishing industry could understand, too often leaving the impression their actions were driven not by requirements but by the environmental community or their own alleged prejudice against the fishing industry.

In the early 1990s it was becoming clear that rampant overfishing had decimated the Gulf of Maine and Georges Bank fish stocks. But the New England fishery management council failed to fight off political pressure and impose strict, scientifically defensible policies that might have corrected the downward trend in fish populations. When the National Oceanic and Atmospheric Administration tried to intervene, it ran up against a brick wall of political opposition from elected officials. While these cuts would have imposed hardship, it is possible they might have helped avoid some of the future difficulties still being visited on the industry as it tries to resurrect itself from decades of overfishing.

The National Oceanic and Atmospheric Administration has also failed to develop a communications network capable of adequately explaining the rationale behind

its frequently unpopular decisions while listening to and alleviating the legitimate concerns of the industry.

In the most recent example of the agency's tone-deafness, in 2010 the Department of Commerce's inspector general found widespread mismanagement in the National Oceanic and Atmospheric Administration's fisheries law enforcement arm. In a series of investigations, the inspector general discovered fines paid by fishermen that had been used to purchase vehicles for use by enforcement agents, collusion between prosecutors and judges on fisheries enforcement cases, and excessive fines and enforcement levied against New England fishermen.<sup>30</sup>

But that wasn't all. While the investigation was ongoing, the head of the National Oceanic and Atmospheric Administration's Office for Law Enforcement hired a document-shredding company to destroy files. Despite these egregious actions, under current law governing federal personnel management, the National Oceanic and Atmospheric Administration could not find grounds to fire the employee. Instead, he and his six-figure salary were transferred to another department, enraging fishermen who rightfully wondered how they would have been treated if the tables were turned.

This culture of closed-mindedness and failure of communications runs deep in the region and must be changed if relationships with industry members are to be improved.

---

## Politicians

Politicians, driven by howls of protest from their commercial fishing constituents who faced the threat of lost revenue, jobs, and ultimately an entire industry, backed questionable management solutions.

Their efforts included pursuing two separate federally funded buyouts of permits and vessels intended to give fishermen who wanted to get out of the industry a means to do so while still getting some value for their vessels and permits.

Unfortunately, the programs were poorly designed and resulted largely in the purchase of permits from fishermen who weren't fishing anyway. Many who allowed their vessels to be "bought out" of the groundfishery just transferred their effort into other fisheries, creating excess capacity in those fisheries instead.

In the best cases politicians sought a legitimate balance between today and tomorrow, and in the worst cases they went to the mat to protect today's fishing at the expense of tomorrow's.

This attitude carried over into the early years of sector management. Various pieces of ill-advised legislation were introduced that would either override fisheries science or force the abandonment of the sector management system without providing a viable alternative.

Recently the Massachusetts congressional delegation prioritized a declaration of a fishery management disaster in their state after Gov. Deval Patrick petitioned the secretary of commerce for such a distinction given what he describes as "severe economic hardship due to the implementation of the catch shares program."<sup>31</sup>

Gov. Patrick requested \$21 million in aid for his state despite the value of ground-fish landings in Massachusetts increasing from \$72.3 million in 2009 to \$73.3 million in 2010.<sup>32</sup> Granted, this increase does not reflect an increase in operating costs that fishermen cite under sectors, nor is this value evenly distributed. But it is difficult to perceive an increase in revenue as a fisheries disaster by any definition.

---

### Environmental groups

As fishermen used their clout on the council to maintain lenient catch restrictions, environmental groups became caustic in their effort to force the industry to acknowledge the reality of fish stock decline. Facing the lack of acceptance of scientific advice, they ramped up their rhetoric and their tactics.

Ultimately the groups felt they had no other option but to file lawsuits, several of which were successful at forcing regulators to implement stronger catch restrictions than the New England fishery management council had approved. Some industry members saw this as an effort to shut down their fishery and put them off the water. They accused environmental groups of valuing fish over people.

The environmental community's involvement in the fishery has also led to some spectacularly inventive conspiracy theories. One of the most far-fetched beliefs is that the Pew Environment Group—the conservation arm of the Pew Charitable Trusts and funded originally by the founder of Sunoco Oil—is only interested in pushing its conservation agenda in the Northeast to force fishermen off the water,

As fishermen used their clout on the council to maintain lenient catch restrictions, environmental groups became caustic in their effort to force the industry to acknowledge the reality of fish stock decline.

thereby eliminating political pressure keeping Georges Bank and other areas in the Gulf of Maine off-limits to oil drilling.

Today, some environmental groups have become public enemy number two (behind the National Oceanic and Atmospheric Administration) on many of New England's fishing piers for their dogged pursuit of catch shares as an equitable, sustainable fishery management method.

---

## Scientists

Scientists must gather and process incomplete data, spend months if not years running it through models that cannot possibly account for all the variables of a multi-species ecosystem, produce estimates that then must be peer reviewed for accuracy, and come out with a recommendation for a total allowable catch that includes a sufficient buffer to account for the uncertainty of the result of their effort.

All this means that by the time fishermen are actually operating under the catch limits scientists have produced, the data used to estimate population levels is at least two to three years old. In effect, fishermen are catching today's fish under yesterday's rules.

Along the way, scientists at the Northeast Fisheries Science Center also made a few high-profile mistakes, including one incident that came to be known as Trawlgate. In order to provide data for their stock assessments, scientists participate in research cruises where they trawl with commercial fishing gear and count what they capture. But in the winter of 2000, a fisherman noticed that their gear was set improperly, and in effect, scientists were fishing with a net that was half-closed and thus not catching a truly representative sample of fish. When the news broke, the scientists' credibility took a tremendous hit.

As pointed out earlier, even in the best cases, fisheries science doesn't always line up with reality simply because it's inherently inexact. In 2010, for example, after revisiting the data used to set the catch limit on pollock, scientists revised their stock assessment and were able to increase the total allowable catch of pollock by nearly 600 percent. Though this change benefited fishermen, it did little to enhance their confidence in the scientists' work.

By contrast, in November 2011 the Northeast Fisheries Science Center's new assessment of Gulf of Maine cod effectively reversed the findings of its 2008 stock

assessment that showed the stock to be on track to meet its 2014 10-year rebuilding deadline. Instead the 2011 work found that not only was the stock in far worse shape than previously thought, but even if all fishing was halted, the fish would not be able to rebuild within the required time period.

Ultimately, the science center has been unable to adequately explain the concepts of uncertainty they must incorporate in order to develop scientifically acceptable results.

Congress has investigated concerns about the validity of the work at the Northeast Fisheries Science Center multiple times over the past decade, including commissioning eight reviews between 1999 and 2009 by the National Academy of Sciences, the Government Accountability Office, and the National Academy of Public Administration.

The most recent of these was a 2009 investigation by the Department of Commerce inspector general, and the upshot of the report is that while the Northeast Fisheries Science Center operates with less-than-ideal data, it generally does the best it can with what it has to work with. In other words it does precisely what the law requires them to do.

The problem is that fish are hard to count, and as a result, fisheries science in general just isn't very good. According to the inspector general's report, "one senior NMFS official stated that 'best available science' as required by the [MSA] does not necessarily mean 'good science.'"<sup>33</sup>

---

## The Touchstone report

Most recently, the National Marine Fisheries Service and the science center were the subjects of an independent analysis commissioned by the National Marine Fisheries Service and published in April 2011 by the SRA-Touchstone Consulting Group. The report, "A Review of the New England Fishery Management Process," compiled interviews with 179 fishery stakeholders into a stark assessment of the problems facing the groundfishery's management structure.

The report focused on the three federal components of the fishery: the National Marine Fisheries Service's Northeast regional office, the New England fishery management council, and the Northeast Fisheries Science Center. It broke down specific positives and challenges for these institutions and found that each organi-

zation had “pockets of” staff who were “very helpful” or “high-performing” but in each case the challenges or negatives vastly outnumbered the positives.<sup>34</sup>

Many of Touchstone’s recommendations come down to communication, transparency, and accountability, all of which are fundamental to developing an appreciation for where the “other side” stands on a given issue. Some key findings from the report clearly point to this set of problems and make it clear that every group involved must share the blame for the evolution of the current state of dysfunction:

- **Lack of stability in the regulatory structure is a problem.** The report’s authors state: “Fishermen also expressed frustration about the lack of stability in the system. ... *‘we cannot create a business plan when everything is always changing’*” (emphasis in original). Yet the report also asserts, “political intervention ... over time ... has contributed to unpredictability and rapid changes of the decisions.” In other words, fishermen see an ever-changing system as a problem, but then they rely on their political allies to drive additional adaptations.
- **Lawsuits are not helping.** The report explains, “Lawsuits have also become an effective tool used by both industry and environmental nongovernmental organizations (NGOs) against the National Marine Fisheries Service. As a result, NMFS has become more rigid and strict in its interpretations of the law and policy.” When political intervention fails, or moves too slowly, the next level of recourse becomes the court system. The agency, leery of the increasing threat of legal recourse, then feels the need to ensure every “t” is crossed and every “i” dotted. This takes time and creates a positive feedback loop—delays lead to more complaints, more lawsuits, and more delays.
- **Fishermen don’t feel heard by regulators.** This statement captures the situation in a nutshell: “Across the board, industry feels NMFS does not seek to help them. ... over time this tension has grown to levels that both NMFS and industry feel are unproductive.”

The report details numerous suggestions for improving the situation.

Communications, data-sharing, and transparency are listed as key to improving relationships. At this point, the stakeholders in the region no longer trust what regulators and scientists tell them about why certain decisions have to be made. They must be shown the methodology in a format that doesn’t require an advanced degree to comprehend.

Of course, communication is a two-way street. Just as the agency and science center must do a better job putting information into the hands of the industry, the industry must be willing to commit to receiving the information and accept that their regulators aren't deliberately trying to put fishermen out of business.

Notable among the Touchstone report's recommendations was an implicit acknowledgement of one of fishermen's fundamental arguments: that the regional office is perceived as being unhelpful, or as the report put it, there was a need to "shift the culture and posture of NMFS from 'no we cannot do that' to 'here are some ideas that could work.'" Finding this balance of proactive flexibility will be fundamental to smoothing the path to better relationships.

The phrase most frequently heard from those seeking to resolve conflicts among regulators and fishery stakeholders is that these relationships must be "rebuilt." But this term does not carry sufficient weight to address the scope of the problem. Many of these relationships are too deeply troubled to benefit from a rebuilding. If the foundation is rotten, even a perfectly rebuilt house will collapse. These relationships must be entirely reconceived, reestablished, and ultimately re-created.



# Making sectors work for the future

This section will make specific recommendations that relate to each of these groups and ultimately provide a blueprint for moving this industry away from the contentiousness and miscommunication that has plagued it in recent years and toward a future that recognizes the economic and ecological realities of the fishery.

It will also offer recommendations for improving the sector management system itself.

---

## Hire personnel who will prioritize building better relationships

In the coming months the National Oceanic and Atmospheric Administration's leadership will appoint new individuals to arguably the two most important positions in the Northeast region: the Northeast regional administrator, responsible for the Northeast Regional Office in Gloucester, Massachusetts; and the director of the Northeast Fisheries Science Center, NMFS's science branch in Woods Hole, Massachusetts.

Integral to future success in the fishery will be ensuring these positions are filled by individuals who have a greater understanding of the need for an open and transparent dialogue with all stakeholder groups and the importance of conveying the rationale behind their decisions in clear, concise language.

The head of the regional office also holds a seat on the New England fishery management council, and is the primary interface between the agency, the industry, and the NGO community. Finding someone to fill that office who can strive to balance the often opposing perspectives of environmental and fishing groups and placate skittish politicians will be no easy task. But it will be critical to the future of the fishery.

As called out in the Touchstone report, successful communication is desperately lacking throughout the agency, the science center, and among different nongovern-

mental stakeholders. All those with a stake in the fishery must get better at effectively and unemotionally explaining their perspectives and improve their willingness to listen to and absorb the perspectives of those with whom they may disagree.

The National Oceanic and Atmospheric Administration should appoint individuals to the positions of northeast regional administrator and director of the Northeast Fisheries Science Center who will make reconstruction of stakeholder relationship an immediate priority and be willing to accept that this will be a long, involved process. Particularly the incoming regional administrator must prioritize implementation of the Touchstone report's recommendations. This includes improving communication and, as the report put it, "reestablishing 'development of the commercial fishing industry' as part of the NMFS mission."

---

### Improve communication

Relationships are founded on a mutual ability to communicate—to both provide and receive information from external sources. In this case all stakeholders in the fishery must become more willing to engage with the others.

While there is ample blame to go around about the devolution of communication among stakeholder groups, the National Oceanic and Atmospheric Administration must offer the first olive branch to the industry because it is the overseer. But this message will not be received with open arms. It will require a persistent, dedicated effort and likely some proven concrete results in the form of implemented policy changes before the industry will begin to accept that the agency's insistence that it is "here to help" is actually sincere.

Further, bureaucracy has a bad reputation for a reason. The agency's path is beset with regulatory, legal, and logistical hurdles that hinder its ability to implement even the most seemingly simplistic, commonsense solutions. Frequently, a disconnect even seems to exist within the agency itself, whereby leaders at NOAA headquarters in Silver Spring, Maryland, will respond favorably to requests from fishermen or politicians, but when regulators at the regional office in Gloucester, Massachusetts, attempt to implement these policies, they run into logistical or legal roadblocks, the policies languish, and nothing changes. This makes the agency appear disingenuous and leads to accusations that it is simply paying lip service to problems rather than actively working toward solutions.

In instances when the agency can't seem to get out of its own way to implement the policies it claims to support, it must make an extra effort to inform the public about why such a delay exists. For example, in the case of the law enforcement employee found to have shredded documents while under investigation by the Department of Commerce inspector general, the agency may not have had legal cause to fire this individual for what was surely a case of extremely poor judgment even if it was not actually illegal activity. Yet the agency has clearly failed to make the case with the general public that the decision to retain his services was not an option but a legal mandate.

The National Oceanic and Atmospheric Administration will be doomed to additional rhetorical attacks until it can recognize these situations and convey adequate messages to the industry.

Meanwhile, fishermen who contact their elected officials bemoaning the state of their industry and the National Oceanic and Atmospheric Administration's unwillingness to help them too often ignore the positive steps the agency has taken to improve the industry, including investing millions of dollars in research and transition assistance. Fishermen see regulations tightening, restricting their ability to catch fish and make money. But they have to make a better effort to understand why those restrictions are being put in place.

At the same time, elected officials need to do their due diligence and condense a wide variety of stakeholder perspectives into well-reasoned policy action.

We recommend the following for improving communication among the parties:

- **A National Oceanic and Atmospheric Administration status report.** In 2012 the National Oceanic and Atmospheric Administration should provide a one-year status report on its implementation of the recommendations in the Touchstone report, detailing how it has addressed the points raised and outlining its ongoing path to resolving the issue identified.
- **The National Oceanic and Atmospheric Administration must improve its internal communications structure.** All quarters of the agency, including the regional office, must remain informed and be prepared to act decisively and cohesively when directives are issued. Without swift actions that support consistent messages, the agency will find it difficult if not impossible to build and maintain any semblance of credibility and combat the industry's perception—laid out in the Touchstone report—that the agency “does not seek to help them.”

Fishermen see regulations tightening, restricting their ability to catch fish and make money. But they have to make a better effort to understand why those restrictions are being put in place.

- **The National Oceanic and Atmospheric Administration must dedicate specific resources to external affairs and liaising with industry members and fishing community leaders.** Currently there is only one individual in the National Marine Fisheries Service's northeast regional office focusing on fisheries communications, which constitutes only a portion of her job. The National Oceanic and Atmospheric Administration must develop better working relationships with individuals on their boats and on the docks to identify emerging issues before they boil over and become another example of how the agency is failing the industry. The incoming regional administrator and director of the Northeast Fisheries Science Center must prioritize these activities as they create their work and performance plans.
- **Fishermen must be open to the idea that the agency is trying to make a system work for them.** They must sort through the rhetoric and look at the facts. Working within the system to ensure a better future will pay greater dividends than attempting to blow up a system only to be left with nothing to replace it.
- **Elected officials must hear all sides of an issue and develop a fundamental understanding of frequently complex and multifaceted problems.** In addition, while the next election always seems right around the corner, and constituents expect and deserve attention to their immediate concerns, their representatives must bear in mind the long-term consequences of the actions they endorse or request. Like their industry constituents, elected officials must recognize that agency actions often adhere to broader goals that the politicians or their predecessors have created in law.
- **Environmental groups must come out publicly to support the future of the fishing industry.** Environmental organizations must ensure fishermen are given an adequate voice so the groups are not perceived as imposing their will on the industry. And they must acknowledge the reality that there must be a balance between protection of the ecosystem and sustaining the fishing industry. Pursuit of policies that result in de facto closures of the fishery will only draw fire from the industry and politicians, and they will not produce the desired outcome.

---

## Address consolidation concerns

One of the keys to implementing an effective catch share system in any fishery is ensuring a fair distribution of initial allocation of quota. But the transferability of quota—or the annual catch limit—in the groundfishery creates at least the possibility that there will be consolidation of quota in fewer hands.

Other catch share fisheries have attempted to address concerns about excessive consolidation using various methods including capping transfer of permits in the early years of a catch share program, buying out some fishermen as part of the initial implementation strategy, or simply imposing hard limits on how much quota a fishing entity can control.<sup>35</sup>

When developing sectors, the New England fishery management council discussed the possibility of including caps or limits on consolidation of quota and restricting the amount of fish a single sector could control. Ultimately, the council determined that it would be unable to complete its work developing sectors before the 2010 fishing year if it took the time to solve the consolidation riddle.

The council has on multiple occasions foregone the opportunity to implement measures to address consolidation limits—much to the chagrin of many smaller operators. Council action to resolve this issue will provide certainty for the business plans of large and small operators alike. And it would allow communities to adapt their fishing industries to take advantage of the opportunities sectors provide.

- **The New England fishery management council should promulgate a definition for what constitutes “excessive consolidation” and develop and implement measures to prevent it from occurring in the groundfishery.** Such a policy should account for the need to maintain a free market for leasing quota and buying permits. The policy should not force any fishermen to divest themselves of permits without ample time to ensure a fair return on their investment.
- **Larger fishing entities must recognize that setting reasonable caps on consolidation is a necessary component of a catch share system and that the socio-economic impact of a dramatic reduction of competition within the fishery threatens the long-term viability of small fishing communities.** Fishermen must work together to determine an appropriate form for their fishery to take, accounting for factors such as diversity of vessel size, gear type, homeport, and ensuring all states can participate in the fishery.

---

## Improve sector management's mechanics

Sector management is designed to give fishermen greater flexibility about when, where, and how to fish. As such there are additional steps the agency can take to remove some of the pre-existing hurdles left over from the days-at-sea system and to take advantage of the efficiencies sectors can provide.

Many of these were outlined in a letter sent to the National Marine Fisheries Service on July 26, 2011, from the eight U.S. senators from Maine, New Hampshire, Massachusetts, and Rhode Island.<sup>36</sup> The letter specifically asks that the agency “make several common sense adjustments” to the sector management system to reduce the regulatory burden on fishermen and allow them access to more fish while remaining within the scientifically mandated annual catch limits. They are outlined here.

## Reduce monitoring costs

Fisheries managed under catch share systems inherently require more monitoring than their non-catch share counterparts because the total allowable catch is divided into many small portions, each of which must be accurately counted. In 2012, 17 percent of all groundfish trips must include at-sea monitors who track the amount and species of fish caught, and an additional 8 percent will carry a scientific fisheries observer. The observer verifies the documents provided by fishermen at the end of a trip stating how much of what species were caught and ensures fishermen are not discarding undesirable species at sea.

Particularly given the reduction in catch limits expected from the poor stock assessment of Gulf of Maine cod, many industry members feel their profitability would be severely compromised if they were forced to bear the full cost of the program.

As mentioned earlier in this report, electronic monitoring—putting video cameras on boats to record activity—could contribute to solving this problem. Observers would review a random sample of video from a vessel's trip to check for anomalies. If they discover violations, the vessel owner would have to pay the cost of reviewing all footage from that trip and be responsible for any fines that result from activities captured on tape. The Northeast Fisheries Science Center has been reviewing the possibility of using electronic monitoring in the groundfishery,

but to date it has not approved its use. While the future of funding for any kind of observer coverage remains in question, we should be exploring all options for reducing the cost of fishery monitoring regardless of who will be footing the bill.

- **The Northeast Fisheries Science Center should accelerate its evaluation of the potential to implement electronic monitoring in the groundfishery.** In addition to determining whether this method could work under the existing parameters of sector management, it should also consider which changes in the regulatory structure would allow electronic monitoring to be used as a scientifically viable method of monitoring catch.
- **Environmental groups and fishermen should research the viability of electronic monitoring or otherwise alleviating the cost of data collection on the industry until the fish stocks rebuild to a level that allows the industry to make a greater investment on its own without risking harm to individual fishing operations.** Efforts by environmentalists to “put their money where their mouth is” will help convince fishermen that the groups are seeking workable solutions for the future of the industry and not just practicing conservation for conservation’s sake.

### Evaluate input controls

The days-at-sea system controlled the input of fishing effort while the sector system controls the output of fish harvested. Under days at sea, fishermen were forced to contend with creative mechanisms designed to limit their effort. These tools, known as “input controls,” included seasonal and annual closures of certain fishing areas and restrictions on the type of gear fishermen could use. In their letter the senators argue appropriately that such controls are less necessary under a management system where the only true metric is output—how many fish are caught.

This is not to say that all input controls should be jettisoned. Closed areas, for example, may serve a distinct purpose as habitat protection zones, so lifting the closure wholesale could have a deleterious effect on fish populations. But it makes sense to review such measures to determine their ongoing utility or lack thereof under sectors.

- **The National Oceanic and Atmospheric Administration should direct the New England fishery management council to conduct a full review of all input control measures to determine their utility under the current management system.** If appropriate, they should open closed areas, remove gear restrictions,

and take other steps to reduce unnecessary regulation of fishing activity. Such a review should include studies of market valuation and biological ramifications.

### Grant access to unused quota

Fish don't respect calendars, and since one of the goals of the sector management system—and catch shares in general—is to provide more flexibility to fishermen, it makes sense to allow a little blurring of the lines when it comes to the “annual” nature of annual catch limits. After all, nature doesn't suddenly restock the ocean with fish on May 1 after the New England fishing year comes to a close on April 30.

Sector management regulations already include a provision allowing fishermen to carry over up to 10 percent of their quota from the previous year if they fail to use it in the year for which it was assigned. Without this provision, there could actually be negative environmental and safety implications—similar to the “race for fish” model that was the hallmark of previous failed fishery management systems.

As fishermen approach the close of the fishing year, they could choose to fish excessively, even in unsafe weather conditions, because of the perverse incentive to “use it or lose it.” Even the 10 percent cap can incentivize fishermen to make sure they get to 90 percent of their quota before the buzzer.

- **The National Oceanic and Atmospheric Administration should direct the New England council to work with its science and statistical committee to develop and implement a proposal to allow carryover of more than 10 percent of unused quota when biological conditions permit.** This flexibility will be particularly important for Gulf of Maine cod in 2013. Sending a strong message to fishermen that any cod they don't catch in 2012 can be carried over to 2013 could allow them some additional relief as they look to prepare for a 2013 when cod availability will truly be at a premium.

### Analyze permit banks

A permit bank is a mechanism designed to ensure access for an otherwise disadvantaged segment of the fishing population. An organization, or in some cases a government entity, purchases permits and provides the affiliated access to a specific group.

Fish don't respect calendars, and since one of the goals of the sector management system—and catch shares in general—is to provide more flexibility to fishermen, it makes sense to allow a little blurring of the lines when it comes to the “annual” nature of annual catch limits.



Qualifications for participation in these banks are often attached. Maine, for example, received funding from the federal government in 2010 to establish a permit bank that would allow boats from small fishing communities to gain additional access to the fishery that they would otherwise be unable to afford. The state used the funds to purchase permits, and then set up an auction process where fishermen could bid on the quota contained in the permit bank if they met the qualifications established by the program.

Some fishermen worry that allowing the government or other organizations to purchase and bank permits will distort the market, effectively driving up the price for permits that could be purchased by private entities. These concerns will have to be addressed if permit banks are to become a widely used option.

- **The National Marine Fisheries Service should examine the existing structure of permit banks to determine whether the benefits of the programs to the fishermen who are eligible outweigh the detrimental impacts on those who are ineligible.** The service should also increase collaboration with states to provide them adequate flexibility to use the program to support the fishing industry in the manner that makes the most sense for each given state.

### [Get better data on fish stocks](#)

One fundamental reality politicians must acknowledge is that fishing jobs are most dependent on one single factor: fish populations. And over the course of human history, there has yet to be a single instance in which we were able to use legislation to summon a resource where that resource simply did not exist. Nature cannot be told what to do, and fish populations will not magically appear no matter what Congress says.

The law is clear in stating that overfishing must be ended immediately, and that every fishery must be managed by a strict annual catch limit based on the “best available scientific information.”<sup>38</sup> Further, the Magnuson-Stevens Act requires overfished fisheries to be rebuilt within 10 years except in certain specific cases.<sup>39</sup> These policies can lead to future prosperity and higher yields from the fishery.

The trouble is, fisheries science is inexact. Fisheries scientists have an old saying that “counting fish is like counting trees, except they are invisible and they keep

moving.” National Marine Fisheries Service Administrator Eric Schwaab is fond of adding the corollary: “and they eat each other.”

As a result, stock assessments include a high degree of uncertainty, and it takes time to conduct them. By the time a new stock assessment is completed, the catch data used as the basis for that assessment are likely at least two years old. That means fishermen are on the water today, fishing under catch limits pegged to the status of the stock as it existed two years ago. So if they see that the fishery seems healthier than it used to be, they become bitter that they’re still restrained by old data. They also feel their observations and input are not valued.

So why don’t we have better data? Part of it is the reality of accounting for an invisible resource. The other part is that science costs money, and Congress hasn’t been especially good at handing out money in today’s budget-slashing climate.

One of the potential side benefits of catch share management is that because it requires data collection on a finer scale—every fisherman’s catch must be accounted for down to the pound to ensure he does not exceed his allocation—there is a higher degree and quality of information that can potentially be used for other purposes.

Stock assessments are comprised of two different kinds of data that are then fed into models. Fishery independent data are collected by scientists, not fishermen. These data are then combined with fishery dependent data—information collected by fishing vessels including total landings and discard estimates. Catch shares result in a higher degree of fishery dependent data, which can potentially be incorporated into the models to give scientists and regulators a more accurate stock assessment.

Recommendations for improving data on fish stocks include:

- **Congress must prioritize funding for fishery stock assessments.**
- **The National Oceanic and Atmospheric Administration should work with the Northeast Fisheries Science Center to develop parameters that will allow a higher degree of fishery dependent data to be included in stock assessments.** Such parameters must include providing assurances to fishermen that the data provided will be subject to meaningful confidentiality standards so proprietary information can be protected. Using data already collected by fishermen will increase fishermen’s confidence in the science and reduce the amount of data that must be collected through external sources.

- **The Northeast Fisheries Science Center should seek additional collaboration with other local scientific institutions and cooperative institutes to better inform and improve stock assessments and bolster fishermen's confidence in the National Oceanic and Atmospheric Administration's science.** In addition to bringing different perspectives to the table and potentially developing new and better ideas, such action might help increase trust from the fishing industry. Fishermen are often reluctant to trust data from government sources, so they may be more willing to trust the science if nongovernmental academics have a role in developing it.

# Conclusion

Through all the sturm und drang about how sectors are destroying fishing communities, killing jobs, and tearing asunder the social fabric of coastal New England, no one has proposed a viable replacement system. Sector management can be improved, and it will be improved. But in so doing we must account for biological and regulatory realities. There are only so many fish to go around, and they must be partitioned in some way among those who would catch them.

This report has outlined recommendations on how to improve that process, but before success can be attained, everyone in this process must tone down the rhetoric, set aside longstanding relationship conflicts, open their minds, and listen to the varying perspectives of those around them.

Regulators aren't out to get fishermen. They want a healthy industry supporting vibrant coastal communities.

Fishermen aren't trying to catch the last fish in the sea. They seek a sustainable business model that will make their industry profitable today and tomorrow.

Environmentalists aren't fish-hugging idealists with their heads in the clouds. They strive for a balanced approach that keeps fish coming to the table and maintains healthy oceans.

Politicians aren't ignorant demagogues. They are simply trying to do the right thing by their constituents and find solutions to seemingly intractable problems.

Scientists aren't blind to the experiences of fishermen. They operate with specific criteria and the utmost scientific integrity and precision to develop a best estimate of the populations of species that sustain this historic industry.

There is a solution to this crisis. There is optimism for this fishery. New Englanders may never again be able to walk across the Gulf of Maine on the backs of cod, but with a little good fortune and a lot of hard work, they will be catching groundfish for centuries to come.

---

## About the author

**Michael Conathan** is the Director of Ocean Policy at American Progress. Prior to joining American Progress, Mike spent five years staffing the Senate Committee on Commerce, Science, and Transportation's Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard. He oversaw enactment of multiple key pieces of ocean legislation, including the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 and the International Fisheries Agreement Clarification Act. A native Cape Codder, Mike received a master's degree in marine affairs from the University of Rhode Island in 2005 and also holds a bachelor of arts in English literature from Georgetown University.

---

## Acknowledgements

The author would like to thank the early reviewers of this report and those who contributed to its development, particularly Jonathan Labaree and Kate Burns of the Gulf of Maine Research Institute, and CAP colleagues Kiley Kroh and Kate Gordon. Multiple staff members from the Department of Commerce, the National Oceanic and Atmospheric Administration, and the National Marine Fisheries Service also deserve recognition for their assistance. Lastly, this report would not have been possible without the vital contributions and boundless support of Anna Cranage Conathan.

---

## Endnotes

- 1 It has been the author's experience that women in the commercial fishing industry prefer to be referred to as "fishermen" rather than the gender-neutral "fishers." As a result this report will use the former term to refer to all who engage in commercial fishing activities regardless of gender.
- 2 "Fishery Management Plans, Northeast Multispecies – Sector Management," available at: <http://www.nero.noaa.gov/sfd/sfdmultisector.html>
- 3 In the Northeast the fishing year runs from May 1 to April 30, so sector management took effect on May 1, 2010.
- 4 Northeast Fisheries Science Center, "Brief history of the groundfishing industry of New England, Part 2, Period 5, The 2nd Industrial Revolution (1977-1984)," available at <http://www.nefsc.noaa.gov/history/stories/groundfish/grndfish2.html#rsd>.
- 5 Magnuson-Stevens Fishery Conservation and Management Act, Section 302.
- 6 Sustainable Fisheries Act, Public Law 104-297, 104th Cong. (October 11, 1996).
- 7 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Public Law 109-479, 109th Cong. (January 12, 2007).
- 8 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Section 302(h)(6), emphasis added.
- 9 National Marine Fisheries Service, Northeast Regional Office, "New England Fishing Season to Open with Higher Catch Limits and More Access for Small-vessel Fishermen," News release, April 18, 2011, available at <http://www.nero.noaa.gov/nero/hotnews/NR1111/>.
- 10 City of New Bedford et al. v. Honorable Gary Locke, et al., Civil Action No. 10-10789-RWZ, available at [http://www.talkingfish.org/wp-content/uploads/2011/07/NB\\_v\\_Locke\\_Decision.pdf](http://www.talkingfish.org/wp-content/uploads/2011/07/NB_v_Locke_Decision.pdf).
- 11 Ibid.
- 12 Peter Shelley, "Focus going forward should be on making the New England Council and sector management work – not on repeating unsubstantiated arguments," TalkingFish.org, October 5, 2011, available at <http://www.talkingfish.org/opinion/focus-going-forward-should-be-on-making-the-new-england-council-and-sector-management-work-not-on-repeating-unsubstantiated-arguments>.
- 13 "Editorial: NOAA chief's 'hostile' stands cry out for accountability," Gloucester Daily Times, October 5, 2011, available at <http://www.gloucestertimes.com/opinion/x1225298874/Editorial-NOAA-chiefs-hostile-stands-cry-out-for-accountability>.
- 14 Eric Schwaab, Testimony before the Subcommittee on Federal Financial Management Committee on Homeland Security and Government Affairs, June 20, 2011, available at [http://www.noaaneews.noaa.gov/stories2011/20110620\\_schwaabtestimony.html](http://www.noaaneews.noaa.gov/stories2011/20110620_schwaabtestimony.html).
- 15 Eric Schwaab, "Statement on the International Fisheries Agreement Clarification Act," December 23, 2011, available at <http://www.nmfs.noaa.gov/mediacenter/docs/SchwaabStatement.pdf>.
- 16 Don Cuddy, "Disputed Catch Limit Set to Rise," SouthCoastToday.com, June 17, 2010, available at <http://www.southcoasttoday.com/apps/pbcs.dll/article?AID=/20100617/NEWS/6170321/-1/rss14>.
- 17 Letter from the Groundfish Industry to New England's Senators and Congressmen, November 14, 2011, available at: [http://www.savingseafood.org/images/documents/regulation/groundfish\\_industry\\_letter\\_to\\_new\\_england\\_delegation\\_111411.pdf](http://www.savingseafood.org/images/documents/regulation/groundfish_industry_letter_to_new_england_delegation_111411.pdf)
- 18 Gulf of Maine Research Institute, "A Survey of the New England Groundfish Fishery: Perceptions After a Year Under Sector Management" (2011), available at <http://www.gmri.org/upload/files/Groundfish%20Sector%20Survey%20PDF%20Brochure%204%20copy.pdf>.
- 19 Ibid.
- 20 Andrew Kitts and others, "Report for Fishing Year 2010 on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2010 – April 2011)" (Woods Hole, MA: Northeast Fisheries Science Center, 2001), available at <http://www.nefsc.noaa.gov/publications/crd/crd1112/crd1112.pdf>.
- 21 NOAA, "Commerce Secretary Gary Locke Announces Harvest Limit Increases for Northeast Fishermen," July 14, 2010, available at [http://www.noaaneews.noaa.gov/stories2010/20100714\\_groundfishclosure.html](http://www.noaaneews.noaa.gov/stories2010/20100714_groundfishclosure.html).
- 22 National Marine Fisheries Service, "Overview of Gulf of Maine Cod Assessment 2011/2008," January 9, 2012, available at <http://www.nero.noaa.gov/nero/hotnews/gomcod/2011%20Gulf%20of%20Maine%20Cod%20Baseline%20Assessment%2012-08-11.pdf>.
- 23 Ibid.
- 24 Magnuson-Stevens Fishery Conservation and Management Act, Section 305(c)(1).
- 25 Northeast Fisheries Science Center, "Assessment or Data Updates of 13 Northeast Groundfish Stocks through 2010" (2012), available at <http://www.nefsc.noaa.gov/publications/crd/crd1206/>.
- 26 Northern Economics, "A Review of Observer Programs in the Northeast, the West Coast, and Alaska" (2011).
- 27 "Gloucester boat crew member indicted for assault on monitor," Gloucester Daily Times, February 24, 2011.
- 28 Howard McElderry and others, "Electronic Monitoring of the Cape Cod Haddock Fishery in the United States a Pilot Study" (2005), available at <http://www.cchfa.org/documents/haddock%20em%20report%20final.pdf>.
- 29 "Electronic Monitoring System Pilot Study," available at [http://www.nefsc.noaa.gov/femad/fsb/Electronic%20Monitoring%20Pilot%20Study/Electronic\\_Monitoring\\_Pilot\\_Study.html](http://www.nefsc.noaa.gov/femad/fsb/Electronic%20Monitoring%20Pilot%20Study/Electronic_Monitoring_Pilot_Study.html).
- 30 Office of Inspector General, National Oceanic and Atmospheric Administration – Review of NOAA Fisheries Enforcement Operations (Department of Commerce, 2010), available at <http://www.oig.doc.gov/Pages/Final-Report%2E%2094ReviewofNOAAFisheriesEnforcementProgramsandOperationsOIG-19887-2.aspx>.
- 31 Patrick, Gov. Deval, "Patrick-Murray Administration renews request for disaster assistance for Massachusetts fishing industry," press release, November 15, 2011, available at <http://www.mass.gov/governor/pressoffice/pressreleases/2011/111115-fisherman-disaster-declaration.html>

- 32 Kitts and others, "Report for Fishing Year 2010."
- 33 Office of Inspector General, *Letter to Sen. Snowe re: the Northeast Fisheries Science Center and the Quality of the Science Used to Determine Catch Limits for New England Commercial Fisheries* (Department of Commerce, 2009), available at <http://www.oig.doc.gov/Pages/LettertoSenatorSnoweReTheNortheastFisheriesScienceCenter.aspx>.
- 34 Touchstone Consulting, "A Review of the New England Fishery Management Process" (2011), available at [http://www.nefmc.org/press/press\\_releases/2011/02\\_fullreport\\_touchstonereport.pdf](http://www.nefmc.org/press/press_releases/2011/02_fullreport_touchstonereport.pdf).
- 35 Meridian Institute and MRAG Americas, "Catch Shares in New England: Key Questions and Lessons Learned from Existing Programs" (2010), available at [http://www.gmri.org/upload/files/10\\_Catch\\_%20Shares\\_New\\_England.pdf](http://www.gmri.org/upload/files/10_Catch_%20Shares_New_England.pdf).
- 36 Letter from Sen. Olympia Snowe to Eric Schwaab, Assistant Administrator, NOAA Fisheries, July 27, 2011, available at [http://www.savingseafood.org/images/documents/congress/schwaab\\_letter\\_from\\_lawmakers\\_071611.pdf](http://www.savingseafood.org/images/documents/congress/schwaab_letter_from_lawmakers_071611.pdf).
- 37 Daniel Georgianna and others, "Break-Even Analysis of the New England Groundfishery for FY2009 and FY2010" (2011), p. 8, available at [http://www.mass.gov/dfele/dmf/publications/break\\_even\\_analysis\\_111411.pdf](http://www.mass.gov/dfele/dmf/publications/break_even_analysis_111411.pdf).
- 38 Magnuson-Stevens Fishery Conservation and Management Act, Section 301(a)(2).
- 39 Magnuson-Stevens Fishery Conservation and Management Act, Section 303(e).

---

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just, and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is “of the people, by the people, and for the people.”

---

