



The Development of Catch Shares: Lessons Learned from New England

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Table of Contents

Acknowledgements	i
Executive Summary	1
Introduction	7
Brief Background of Groundfish Management	8
Magnuson Reauthorization - Federal Fisheries Undergo Overhaul	12
Cape Cod Takes the Initiative	14
Securing the Council Votes	16
Amendment 13 Implemented – May 1, 2004	18
Making the Concept of Sectors a Reality	18
<i>Key Lessons for Engaging the Fishing Community</i>	20
Groundfish Management Remains a Challenge	21
Searching for New Directions Outside the Council Process	22
Amendment 16 - Inviting Alternatives	29
Soliciting Public Input	29
Technical Workshops to Refine Alternatives	32
Sector Policy Debated Among Council	33
Sectors as Placeholder	34
Council Decides on Alternatives for Amendment 16 – June 2007	35
Allocation – Who Gets What	36
Addressing the Need for New Monitoring and Reporting Systems	43
Groundswell of Support, Confusion, or Fear?	45
Amendment 16 Timeline Revised – June 2008	46
Organization of New England Groundfish Sectors	47
Coalition Creates a “Network” of Sectors	47
Working with Sectors to Get through the Technical Details	48
Management Approaches of Sectors	49
Council Finalizes Amendment 16	51
Confusion Between New Magnuson Mandates and Sector Policy	51
Rank and File Fishermen Unengaged in Process	51
Industry on Allocation Formula	52
Implement or Delay?	53
Council Approves Amendment 16 – June 2009	53
Implementation Growing Pains	55
Political Changes Bolster Sector Implementation	55
To Join or Not to Join	56
Adapting Current Data Systems and Creating New Ones	59
Addressing Dockside Monitoring Challenges	60
Creating New Organizational Structures	62
Lessons Learned from New England’s Experience Developing Sectors	Error! Bookmark not defined.

Communication and Transparency.....	65
It Takes A Community	66
Considerations for the Council.....	67
<i>Measurable Goals</i>	67
<i>Models and Information</i>	68
<i>Allocation Options</i>	69
<i>Process</i>	69
Considerations for the National Marine Fisheries Service	70
<i>Management Transition</i>	70
<i>Database Systems and Technology</i>	71
<i>Stock Assessments</i>	72
Considerations for the Industry	72
<i>Organization and Cooperation</i>	72
<i>Engagement</i>	73
<i>Scientific Research</i>	73
Considerations for Non-profit Organizations:	73
<i>Funding</i>	73
<i>Industry Leadership</i>	74
<i>Relationships</i>	74
Epilogue	75
Timeline of Amendment 16 and Sector Development	77
Acronyms	81
References.....	82

Executive Summary

The groundfish fishery in New England is in the midst of a historical transition to a new management structure called sectors. Sectors are a form of catch share management where groups of fishermen are assigned annual shares of the catch to harvest. Ninety-eight percent of the historic catch of groundfish fishing has been assigned to sectors for the 2010-2011 fishing year.ⁱ This is clearly a watershed year for groundfish management in New England and many eyes are on the region.

As the industry and the fishing communities grapple with the impact sectors are having on their businesses and their community structure, it may be instructive to reflect on how sectors were developed and take stock of the lessons to be learned in the development process. There is no single person or organization that is wholly responsible for sectors in New England. Sectors evolved over time as fishermen searched to find an alternative to the current days at sea (DAS) system that would keep them in business and rebuild the groundfish stocks. The New England Fisheries Management Council (Council) first introduced sectors under Amendment 13 to the Northeast Multispecies Fishery Management Plan in 2004. At the time, there were only a handful of fishermen from Cape Cod who were ready to try this new approach to fishing.

During 2005 and 2006, some groundfish stocks, particularly cod and yellowtail flounder, continued to be overfished. Many coastal communities in New England were being impacted by the changes in Amendment 13. The Council worked to respond to the concerns of the fishing industry while addressing the pressing need to end overfishing. The phrase “too many fishermen chasing too few fish” was often quoted to describe the state of the groundfish fishery and there were active conversations regarding a vessel buyout program to reduce excess fishing capacity.

Outside the Council process, industry groups, non-profits, and foundations were concerned about the issues facing the groundfish fishery and the communities that depend on fishing. They were exploring alternative management approaches to fisheries management. “Quota-based” management was promoted by some organizations as the best tool to manage the fishery. Under this system, fishermen would be allocated a portion of the total allowable catch (TAC) of groundfish and given exclusive access to a quota (or share) of fish. Fishermen in other parts of the United States and around the world had been implementing fishing quotas, a form of catch shares, for over a decade. Other organizations were exploring new governance systems that were based more within local communities and fostered a more a cooperative management approach with the fishing industry. These “community-based” or “co-management” approaches were seen as creating incentives for greater stewardship of the resource by remanding management responsibility to the fishermen who were closest to the resource. Both of these approaches were being actively discussed and debated within the region and in forums throughout the country (and world).

In November 2006, the Council began the process of designing a new set of management measures for the Multispecies Fishery Management Plan in order to continue with the stock rebuilding schedule outlined in Amendment 13. The Council explicitly stated that they would consider alternative management systems, such as a hard TAC system, area management, individual quotas or fishery sectors. Concurrently, the national agenda for fisheries was undergoing a major overhaul. The United States Congress was in the final stages of negotiating changes to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the federal legislation that dictates the fishery management guidelines with which the nation's fishery management councils must adhere. Significant changes were being considered for the MSA, including new provisions to require Councils to establish a mechanism for specifying annual catch limits (ACL) and accountability measures (AM) in each fishery management plan and the option to develop a limited access privilege program (LAPP), a form of catch shares management.

Members of the New England fishing industry responded to the New England Council's call for alternative management systems by proposing a range of strategies for the groundfish fishery. These included an individual transferable fishing quota (ITQ), area management, a unique "points system" and modifications to the DAS system. Although there was a great deal of variation among the alternative management proposals, the industry was clearly working to find a management solution that would satisfy the rebuilding plan and keep fishermen in business.

Fishermen, by nature, tend to be highly resourceful. Although several industry associations had submitted new management proposals for the Council to consider under Amendment 16, they had enough experience with the fisheries management process to know the outcome of Amendment 16 was highly unpredictable. Indeed, Amendment 13 had been developed during an ongoing lawsuit regarding the Council's previous action (Framework 33) and it took five years to complete. There was no reason to believe Amendment 16 wouldn't succumb to similar circumstances. While working on alternative management approaches, a few members of the fishing industry were also considering submitting proposals to the Council to establish a fishing sector, as approved under Amendment 13. The Associated Fisheries of Maine and the Midcoast Fishermen's Association had been working with the Gulf of Maine Research Institute (GMRI) as part of a case study about communities and sector management. Although they were initially skeptical about how fishing sectors would work for them, participation in the study helped them learn more about how fishing sectors may be designed to accommodate their needs. As the spring of 2007 approached, both groups decided to submit sector proposals by the May 1 deadline for the start of the May 1, 2008 fishing season. The Northeast Seafood Coalition was aware of the movement toward sector proposals and determined that it was an important strategic move to submit sector proposals. The Northeast Seafood Coalition submitted 12 sector proposals to the Council to leave open the opportunity of sectors for its diverse membership. The Cape Cod Commercial Fishermen's Association was working with a group of fishermen to form another sector called the Tri-State Sector and fishermen from Boston and Martha's Vineyard also submitted proposals (Pier 6 Initiative and Vineyard Sector Plan). In total, there were 17 new sector proposals and 2 renewed sector proposals submitted.

By June 2007, the Council had decided there was not enough time to explore alternative management options in Amendment 16. Therefore, they limited the options in Amendment 16 to modifications to the DAS system and consideration of the sector proposals. Given the Council's decision to delay consideration of any new alternative management strategies, the focus turned squarely to sectors as the only alternative to the DAS system. Although voluntary, sectors presented the only alternative for many fishermen who knew they could no longer survive under the DAS as it was constructed.

However, unlike the existing sectors approved under Amendment 13, which were only allocated Georges Bank cod, the new proposals were seeking an allocation of all regulated groundfish. There were a number of important management changes and administrative modifications that needed to take place before sectors could be implemented. On more than one occasion, the National Marine Fisheries Service (NMFS) and the Council expressed concern about the timeline to stay on track with the Amendment 16 DAS provisions and develop a new management framework to accommodate sectors.

March 1, 2008 marked an important milestone in the sector process and provided a clear indication of the momentum behind moving sectors forward for groundfish. The 19 sectors with current proposals had to submit a complete membership roster to NMFS in order to request information on individual members' catch histories. It was estimated that the permit holders listed on the sector rosters represented about 85% of the active fishing fleet in New England. However, this was more an indication of interest than commitment. Fishermen would not be penalized if they opted out of the sectors at a later date and joined the "common pool" remaining under DAS management.

In June 2008, the Council changed the timeline for implementing Amendment 16 when it appeared from preliminary stock assessment information that the management measures the Council was considering for groundfish were targeting the wrong stocks. NMFS issued interim rules that further reduced DAS for the 2009 fishing year and sectors were postponed until May 1, 2010.

However, the delay provided little reprieve for sector organizers, NMFS, and the Council. Although Amendment 13 had established some general sector policies, it was unclear in many places. The monitoring requirements were not very explicit and details regarding monitoring and reporting needed to be resolved. There was also a need to clarify how the sectors impacted other rules and how sectors would interact with common pool vessels.

The most difficult and controversial issue to resolve for sector development (or any catch share system) was determining the initial allocation for the sectors. The sector concept is based on allocating a portion of the TAC to a group of fishermen and the Amendment 13 allocation formula was based on rolling accumulated catch histories from the previous five years for each member of the sector.¹

¹ For the Cape Cod sectors, landings were based on fixed fishing years, 1996 through 2001 for Georges Bank cod.

The Council considered several different allocation options for sectors in Amendment 16. But it was challenging for fishermen to gauge how they would fare under the various allocation options as NMFS had difficulties distributing individual catch histories to fishermen and there were several issues to be resolved. In addition, fishermen only received their *potential* sector contribution. Fishermen would not know their allocation of fish in pounds until the ACLs were established for groundfish. It wasn't until December 2009 that fishermen had the correct numbers to fully understand what they would bring to a sector and, ultimately, how many pounds of fish they could land.

Sectors demanded significant additional administrative resources. Each sector was responsible for writing a final operations plan, environmental assessment and monitoring program. These documents needed to be completed by September 1, 2009 in order for review and approval by NMFS. The sector organizers were assisted by non-profit organizations such as GMRI, Island Institute, and Environmental Defense Fund (EDF) as they tried to meet the deadline. The Northeast Regional Office (NERO) was in support of moving to catch shares, but they were deeply concerned about the timing of Amendment 16 and the legal mandate to end overfishing. However, NMFS staff worked closely with sector organizers to provide templates and explain what was required within the various documents.

At the Council meeting in April 2009, Dr. Jane Lubchenco, Administrator for the National Oceanic and Atmospheric Administration, addressed the Council, calling for them to take decisive action to end overfishing of groundfish through Amendment 16 and committing \$16 million in federal funds to provide assistance in setting up the infrastructure for the new management system based on sectors and catch shares. The additional resources provided NERO with additional staff to devote to the development of sectors and paid for a portion of the environmental assessment costs for sectors so the work could be expedited. These resources also funded some initial start-up costs for sectors and paid for dockside monitoring.

The development of sectors required a new level of cooperation, leadership, and organization from within the industry. The non-profit community also played a critical role by providing technical assistance, political pressure, and funding for development efforts. The Council struggled to keep pace with the deadlines for Amendment 16 while debating critical decisions such as allocation of the groundfish resource and other sector policies. Though NMFS wasn't initially invested in sectors due to concerns about the administrative demands of sectors and the need to comply with rebuilding timelines, they became fully engaged in sector development when it was clear that the majority of fishermen had opted to convert to this new system and there was a shift in the national fisheries management agenda.

There are several lessons to be learned about New England's transformation to sectors in the groundfish fishery. The magnitude of the changes and the potential impact on the fishing community cannot be overstated when developing and implementing a new management structure. The most important ingredients to facilitate the change are *communication and transparency* - at all stages and at all levels. There is no one

organization that can take credit (or blame) for the transition of New England's groundfish fishery to catch shares. *It takes a community* of leaders with foresight who are willing to take risks. The sector program that is now in place took the commitment and dedication of key individuals in leadership positions and the work of many staff within several organizations.

The Amendment 16 process was instructive for the New England Council. Establishing *measurable socioeconomic goals*, in addition to the biological goals, is an important step prior to developing a new management strategy. Despite multiple attempts to create a vision for New England's groundfish fishing fleet over the past two decades, the Council still lacked a clear and transparent set of measurable goals and a vision for how they wanted to see the fishery evolve and this hampered progress. The Council benefited from outside information, especially with regard to establishing monitoring standards. Catch shares are not new to fisheries management and there are other *models and information* that can have tremendous value when designing a catch share system.

The determining factor in any catch share system is the formula for *allocating shares* of the total catch. For good reason, this is the most divisive, contentious, and controversial decision the Council needs to make. The conversation needs to include a thorough vetting of the implications for each allocation formula being considered and the process for decision-making needs to be transparent. Dramatic changes to the system deserve even greater time to develop a series of meaningful options, to discuss and debate these options, to decide on the best options, and to begin implementation. This should be a sequential *process* where each step builds upon the prior decisions.

Though challenging, working with the industry to develop a *management transition* presents an opportunity for NMFS to build positive relationships and foster greater cooperation. It requires NMFS to be open to new ideas, remain flexible in their approach, and work collaboratively with others both within NMFS and with sector organizers. Successful catch shares also demand accurate and timely information to be effective. While some *database systems* in other regions may already be designed to accommodate the new requirements it may be important to invest in *technology*. Fishermen, regulators, and conservationists also want to assure that the *stock assessments* are accurate and timely to make critical management decisions.

The fishery management process in the United States is complicated, time-consuming, and often frustrating to navigate. The ability to make significant progress on changing fisheries policy and engaging with the council process proactively forces the fishing industry to get *organized and cooperate*. It is equally important for fishermen to remain *engaged* throughout the process. The transformation to catch shares also provides a new opportunity for the industry to become active partners in *scientific research*. By understanding and participating in the collection and evaluation of the information used for stock assessments, the industry can critique critical assumptions and suggest potential new research ideas to gain more accurate information.

Finally, the non-profit community is an important player in enabling the transition to catch shares. These organizations occupy a unique niche in the management process and their work would not have been possible without significant *financial resources* from private foundations and other sources. There have been a handful of exceptional leaders within the fishing industry, or representing fishing industry organizations, that have taken extremely risky positions and worked tirelessly. These leaders need an incredible amount of support to pull other fishermen along and pave the way forward. True change happens when people have trust in each other, when they have confidence that moving forward is in their best interest, and when they have the support they need to take a risk. It is built on establishing open and meaningful *relationships* and a dedication to working together.

Groundfish management in New England is dynamic and the groundfish fishermen are resilient. The development of sectors in the groundfish fishery is a significant step in a continually evolving system that attempts to maintain a sustainable resource and a viable fishing opportunity. This document captures a period of rapid development of a new management framework up until implementation. The success of sectors will depend on the individual decisions of hundreds of fishermen as they learn to adapt to this new way of doing businesses. Despite the challenges facing fishermen and the fishing community, there is also an opportunity to innovate to fish more selectively and rapidly evolve the business model to access new markets. The management changes developed for groundfish set a new course for the future of the fishery, the impacts of which will be felt for generations to come.

Introduction

New England has been struggling with managing the groundfish fishery for over two decades. Traditionally, the New England Fisheries Management Council (Council) has favored a series of input management measures that control effort such as constraints on the number of days at sea (DAS), restrictions on the type of fishing gear used, closed areas, and limits on the amount of fish that can be caught per trip. Fisheries management globally has been moving toward a system of output controls as the preferred approach to limit fishing to sustainable levels. Instead of limiting catch by restricting access to the fishery, output controls place limits on the amount of fish (or catch) taken from the ocean.

In the United States, there has been growing interest in a form of output controls termed “catch share” programs that allocate shares of the total allowable catch (TAC). The idea of allocating part of the TAC to a group of individuals or “sector” was introduced in the New England groundfish fishery under Amendment 13 to the Northeast Multispecies Fishery Management Plan in 2004, opening the door to a new approach and the formation of two sectors operating out of Cape Cod.² However, despite the opportunity to create a sector, few fishermen were interested in pursuing this new approach. This changed in 2008 and 2009 when fishermen found themselves faced with further restrictions in DAS and they were searching for some way to stay in business.

In June 2009, the Council took a bold step toward transforming the groundfish fishery to sectors when Amendment 16 to the Northeast Multispecies Fishery Management Plan was endorsed and 17 new sectors for the groundfish fishery in New England were adopted.

Throughout the country, fishermen, fisheries managers, and policy makers are watching how the rapid conversion to sector-based management unfolds as they consider the potential of this management approach. Indeed, other fisheries in New England are already considering sectors as an option in their management plans.³ But how did New England get to this point of transformation? What were the major factors at play and how did the dialogue take place? What were some of the key threshold issues that needed to be addressed? And what is the early experience in New England as new systems are implemented and the traditional manner of fishing faces dramatic changes?

This document is a case study of the New England experience with sectors. It is a snapshot in time within the context of an ever-changing landscape of fisheries management. The goal is to shed light on the lessons learned from the development of sectors and inform other fisheries grappling with the transition to catch share-based management systems. It outlines the inception of sectors and details the events that unfolded over the four-year Amendment 16 process that led up to implementation of groundfish sectors on May 1, 2010. It attempts to provide a glimpse into the perspectives of various fishing interests as they attempt to break new ground.

² The Cape Cod Hook Sector and the Cape Cod Fixed Gear sector formed under the guidance of the Cape Cod Commercial Hook Fisherman’s Association.

³ The monkfish fishery and the herring fishery have both discussed sectors as a future management measure.

The information and opinions in this report stem from a variety of sources. There were 22 interviews conducted between July and September 2010 with fishermen, staff from the NMFS Regional Office, staff from the New England Fisheries Management Council and members of the Council, staff from fisheries organizations, staff from non-governmental organizations, and a foundation staffer. Those interviewed ranged from Downeast Maine to Rhode Island. Each interview lasted at least an hour, with most interviews lasting two or more hours in length. Some attempts to interview additional stakeholders failed due to time, logistics, and in some cases a reluctance to participate. The interviews represent a cross-section of those involved in groundfish issues in New England; this was not a comprehensive survey approach. Background information and facts were also obtained through source documents and Internet websites, particularly the New England Fisheries Management Council website and the National Marine Fisheries Service websites.

It is important to acknowledge that personal experience also influenced the perspective from which this report was written. From 2001-2009, the author worked for the Gulf of Maine Research Institute as part of the Community Program creating dialogue among marine resource users and providing technical assistance. This role offered first-hand knowledge of the development of sectors and a unique viewpoint of the events leading to the transformation of the New England groundfish fishery.

Brief Background of Groundfish Management

The groundfish resource is made up of a mixture of bottom-dwelling fishes including cod, haddock, and flounders. The history of the groundfish fishery in New England takes place over 400 years and is characterized by one of great bounty followed by increasing declines in the resource.ⁱⁱ The build-up of the fleet, subsidized by the government, combined with the use of innovative technology and the absence of incentives to be efficient has led to an over-capacity of the fishing fleet and overfishing of the resource. Consequently, New England fishermen have been trying to adapt to a revolving series of management measures that try to constrain their effort and yield a sustainable fishery as required under the federal MSA.

Efforts to improve the fate of the groundfish stocks have been met with resistance, skepticism, and lawsuits. For the past 30 years, the Council has placed increasing restraints on the fishing industry by adopting a series of Amendments and Frameworks to the groundfish plan.⁴ In the late 1970s and early 1980s, there was an annual and then a quarterly quota set for cod, haddock, and yellowtail flounder. But this management strategy (as implemented) was not successful. Between 1976 and 1982, the principal groundfish stocks declined 53% and fishing mortality rose while the fishing seasons became shorter and shorter.ⁱⁱⁱ Following the depletion of a number of key groundfish stocks in the late 1980s, a limited access management program based on individual DAS allocation was implemented in the mid 1990's. Additional measures to reduce effort

⁴ For a review of Council actions on the northeast multispecies fisheries management plan, visit the NEFMC website <http://www.nefmc.org/nemulti/planamen/planamen.html>

through vessel buyback programs, further reductions in DAS allocations, adoption of year-round and seasonal closed areas and trip limits have failed to produce the result managers were seeking. Between 1994 and 2001, overall groundfish landings tended to trend upward and fishing mortality on some key groundfish stocks continued to cause overfishing.^{iv}

National and Regional Context of Sectors

The changes in the groundfish fishery in New England during the last decade have taken place within the context of a national shift in fisheries policy toward more rights-based management and regional interest to explore new management alternatives such as community-based management approaches.

Advocates of rights-based management argue that overfishing is a result of missing property rights in the fish stocks. The central tenant is that through the establishment of an allocation (or quota) to individuals in the form of property rights or interest in the fishery resource, it is expected that the fishery will be rationalized through market forces. It is assumed that fishermen will have an incentive to utilize the fishery resources in an efficient and sustainable way if they are guaranteed exclusive use of the property.

The individual transferable quota (ITQ) as a tool for limiting access has evoked considerable controversy, however, because of its potential for creating windfall benefits to the initial recipients, the privileges that ITQs create, and the potential for decreasing employment resulting in changes to the social and economic relationships among individuals and communities.

There has been a national debate regarding quota-based management since the mid 1990's. In 1995, the Congressional Research Service reported to Congress on ITQs in fishery management as Congress was refining national fisheries legislation. Following this report, the Natural Research Council's Ocean Studies Board examined the use of quotas both within the United States and internationally in *Sharing the Fish: Toward a National Policy on Individual Fishing Quotas*.^v More recently, the Government Accountability Office released a report in 2006 on fisheries management and developing quota-based programs.^{vi}

The environmental community has played a prominent role in the national agenda for rights-based management. For example, a partnership between Environmental Defense Fund (EDF), the Reason Foundation, and the Property and Environment Research Center created a coalition known as "IFQsForFisheries" in 2003 to advocate for rights-based management. The coalition garnered financial support by national philanthropic foundations such as the Alex C. Walker Foundation, the Bradley Foundation (funds passed through the Sand County Foundation), the Charles G. Koch Foundation, and the Wilkinson Foundation. The coalition's principle members actively promoted the merits of IFQs to lawmakers through a series of seminars and informational booklets.^{vii}

The Environmental Defense Fund has been working hard to establish "catch shares" (a term for quota-based management coined by EDF) as the default management tool for fisheries in the U.S. In 2007, EDF released a report *Sustaining America's Fisheries and Fishing Communities* which documented how catch share fisheries in the United States and British Columbia performed against key environmental, economic, and social goals. Their conclusion was that catch shares are a "key component in successful fisheries management and should be implemented more widely."^{viii} The New England regional office of EDF has

long had a political influence over the fisheries in New England. Since 1997 EDF has had a seat on the Council and been the only representative from the conservation community to sit on any of the eight regional councils around the country. From this position, EDF has been working to promote the use of catch shares in the region and has been partnering with fishermen from the Cape Cod Commercial Fishermen's Association and the Rhode Island Fishermen's Association to assist their efforts at establishing sectors. With funding from the Gordon and Betty Moore Foundation, EDF was able to hire additional staff in 2008 to advance sectors by providing information to fishermen and offering them an opportunity to exchange information with British Columbia fishermen who had experienced a shift to catch shares.

Other efforts have also been made to engage the fishing community in conversations about the impacts of quota systems. The Sand County Foundation and the Alex C. Walker Foundation supported a trip to New Zealand in March 2006 to explore quota-based management on the ground. Organized by California Sea Grant and made up of mainly fishermen, the trip was an opportunity to learn first-hand about New Zealand's quota fisheries and talk directly to fishermen that had been affected by the change in management.^{ix}

Regionally, there has been deep concern with the idea of setting quotas for fisheries and establishing a hard TAC. Early examples of rapid consolidation in the Icelandic fishery and transition to quotas in Atlantic Canada have created distaste for these systems and fear of a management shift in this direction. The method of controlling fishing output by setting limits on total allowable catch has been tried and failed in the New England groundfish fishery. The memory of this failure in the early 80's still haunts many fishermen and managers who view this approach with apprehension.^x Despite these concerns, there have been active conversations in the region to discuss and debate the merits of rights-based management. In 2001, the Maine Fishermen's Forum hosted an all-day meeting where participants discussed standards for implementing individual fishing quotas and also considered alternative fisheries management strategies. In January 2008, Rhode Island Sea Grant hosted a workshop focusing specifically on sectors to provide education and information on sector allocation as a management tool, explore how this method might be applied to New England's quota-managed fisheries, and discuss the pros and cons of this approach.^{xi} In recent years, other national foundations have joined in the regional promotions of catch shares including the Walton Family Foundation, the Gordon and Betty Moore Foundation, and the Paul G. Allen Foundation. The Moore Foundation has given significant amounts focused on the adoption of catch shares in the region.^{xii}

At the same time that creating fishing rights was being put forward as the future of fisheries management, there was an equally active dialogue taking place regarding community-based management and co-management approaches. Under these models, the fisheries management decisions are made on a more local (or community) level and there is increased involvement by fishermen and other stakeholders in the governance process. In 1995, the David Suzuki Foundation published a report, *Fisheries That Work: Sustainability Through Community-Based Management*, which reviewed international examples of fisheries "success stories" and promoted advancing more community

approaches in other fisheries.^{xiii} Nearly a decade later, the Ford Foundation commissioned a report outlining opportunities and obstacles for community-based fisheries management in the United States.^{xiv} In January 2005, the Sand County Foundation and the Alex C. Walker Foundation funded a workshop on community-based fisheries management.^{xv} These are a few examples of the many forums for discussion on community-based management or co-management strategies.

Regionally, the ideas of community-based management and co-management were gaining traction. In Maine, the lobster fishery was experimenting with a new co-management structure that created local zone councils with limited authority to manage the resource. There was also an active community of fishermen in Atlantic Canada pursuing community-based management and they interacted with others in the region who were investigating this approach. The groundfish fisheries crisis in New England was impacting the social structure of communities as well as affecting the resource. Regional foundations such as the Henry P. Kendall Foundation, the Island Foundation, and Sailors' Snug Harbor of Boston were early supporters of New England's efforts to address the fishing communities needs and support new approaches to fisheries management. Advocates of quotas and of community-based methods were both looking for a solution to stem the tide of declining fisheries resources and advance a sustainable fishing future and the debate continued in academic venues, political forums, and on the docks.

Magnuson Reauthorization - Federal Fisheries Undergo Overhaul

The transformation of the New England groundfish fishery took place at the same time that the federal law governing U.S. fisheries, the Magnuson-Stevens Act Fishery Management and Conservation Act (MSA), was being debated by the U.S. Congress. The previous reauthorization of the MSA in 1996 had placed a moratorium on any new IFQ systems in US fisheries. Although originally scheduled to end after five years, Congress extended the moratorium after getting pressure from fishermen, particularly those from New England. Therefore, much of the debate in Congress centered on rights-based management to fisheries.

The reauthorization of MSA was signed into law in January 2007. It includes several new legal requirements aimed at reshaping how fisheries are managed. Two of the primary goals of the MSA reauthorization are to end overfishing and promote market-based management approaches^{xvi}

There is a firm deadline to end overfishing in America by 2011. To achieve this goal, the legislation introduces to the fisheries management lexicon a series of new terms. First, the MSA reauthorization requires the Council to establish Annual Catch Limits (ACL) for each fisheries management plan. Specific provisions are included that require the ACL to be set at or below a scientifically determined Acceptable Biological Catch (ABC). The Council's Science and Statistical Committee is responsible for establishing the ABC for the fishery and the Council is expressly prohibited from setting the ACL above the recommended ABC. To prevent ACLs from being exceeded, the Council must establish Accountability Measures (AM) that define what management actions will be taken to address catch levels that

approach or exceed either a target or limit.

The reauthorized MSA also includes provisions to guide the development of limited access privilege programs (LAPPs), which are aimed at addressing excess fishing capacity. A limited access privilege is a federal permit (issued as part of a limited access system under section 303A of the MSA) to harvest a quantity of fish representing a portion of the TAC. The allocation of fish under an LAPP may be received or held for exclusive use by a person. It can include an individual fishing quota (IFQ) but does not include community development quotas (CDQ).⁵

The MSA provides that individuals, fishing communities, and regional fishery associations may be eligible for and participate in a LAPP and establishes criteria for the development and allocation of LAPPs. These criteria include fair and equitable initial allocations with consideration of relevant factors. Measures to assist and facilitate participation and prevent excessive shares must also be included. Limited access privilege programs are also subject to cost recovery by the federal government to offset the cost of administration (i.e., fees may be collected for the management, data collection, and enforcement of a LAPP).^{xvii}

Unique to New England, the MSA reauthorization restricts the establishment of an IFQ program such that the Council may only submit an IFQ plan to NMFS if it passes a referendum by 2/3 of those voting in the referendum. Voter eligibility is proposed by the Council and must include permit holders and crewmembers that “derive a significant percentage of their total income from the [subject] fishery”. If the referendum passes, NMFS notifies the Council, who may then submit the proposed IFQ program.^{xviii} This provision had a significant impact on how groundfish management would be shaped under Amendment 16.

⁵ A CDQ allocates a percentage of all Bering Sea and Aleutian Islands quotas for groundfish, prohibited species, halibut, and crab to eligible communities in western Alaska.

Amendment 13 – The Birth of Sectors in New England

In order to understand how the groundfish fishery was converted to sector management in 2010, it is important to first learn how sectors came about in New England. The concept of sectors was first introduced through Amendment 13 to the Multispecies Fishery Management Plan. Although the Council began work on Amendment 13 in February 1999, the Amendment was not completed until December 2003 after the Council addressed terms outlined in a court-ordered settlement and a series of negotiations in response to a lawsuit from environmental groups and others (*Conservation Law Foundation et al. v. Evans et al.*).^{xix} The Amendment 13 process went through many starts and stops within the Groundfish Committee and ultimately the Council went directly to the Groundfish Plan Development Team (PDT)⁶ to seek management alternatives that fit into four broad categories – effort management, hard total allowable catch limits, area management and fishing sectors - that would end overfishing and restore groundfish stocks. During this period, however, the Council was defining sectors as groups of fishermen based on gear type (i.e. gillnet, trawl, etc.) or some other categorization such as commercial and recreational.

One of the problems with the original concept for sectors was figuring out what group a permit holder would be assigned to for membership. Fishing permits are not issued based on gear type so this proved problematic. A fisherman active in the Council process heard about the sector concept being floated among the PDT members. Familiar with the formation of Fundy Fixed Gear Council^{xx} - a community-based approach within Nova Scotia's quota system for groundfish - he brought forward the idea of organizing fishermen into voluntary, self-selecting sectors.

Members of the PDT were familiar with the Pacific Whiting Conservation Cooperative (PWCC) and similar approaches in Alaska for the Pollack fishery. The general framework for a sector approach in New England came from the Pacific whiting fishery where the owners of the catcher-processors had created the PWCC. The foundation of the PWCC was to create an exclusive allocation of the TAC for a relatively small and cohesive group of permit holders who were able to agree on a system to ration the TAC amongst the members.^{xxi}

Cape Cod Takes the Initiative

Development of Amendment 13 was mired by an ongoing lawsuit over Framework 33 (a previous Council action) that ended in a federal court mediated settlement. This resulted in an incredible distrust between fishermen and environmental advocates as well as among members within the fishing community (i.e. offshore and inshore vessels, trawl gear versus hook gear, etc.). The community was divided and there was real fear that many would not

⁶ The PDT, made up of experts with knowledge and experience related to the biology, economics, and management of groundfish, serves as an extension of the Council staff. PDTs meet regularly to respond to any direction provided by the oversight committee or Council, to provide analysis of species-related information and to develop issue papers, alternatives, and other documents as appropriate.

survive the proposed cuts to days at sea. The Cape Cod Commercial Hook Fishermen’s Association (CCCHFA) was paying close attention and looking for a new way to manage groundfish and navigate the management system.

“The start of sectors wasn’t sectors, it was area management” recalls Paul Parker, former Executive Director of the CCCHFA. Behind the scenes of the formal Council process, the fishing industry leaders were talking and new ideas were being generated. Galvanized by their frustration with the Amendment 13 process and supported by foundation resources there was an active group of fishermen seeking alternatives to the current management system. The Cape Cod Commercial Hook Fishermen’s Association was talking with members of the offshore fleet from New Bedford and the inshore Gulf of Maine and organizations such as the Northwest Atlantic Marine Alliance and the Gulf of Maine Fishermen’s Alliance among others about the idea of area-based management.

In the end, CCCHFA was the only group of people at the table who were ready to try an area-based approach. They could envision building a different type of community-based fisheries management system by accepting some sort of constraint on where you fish and assigning a quota to that region. Other fishermen at the table weren’t quite ready to make the change, while others were concerned about being permanently boxed into a region so they ultimately lost interest in pursuing the idea.

The CCCHFA could see the writing on the wall. With the potential for low trip limits, DAS cuts, and fear of more year-round closures they predicted Amendment 13 would lead to the end of their fishery. At the time of these discussions, fishermen in Chatham were catching Georges Bank cod – lots of them! There was a viable hook fishery and 12-18 long line boats catching over 2,000 pounds per day during the summer months and whenever they could get out in winter. There was also an active jigging fleet.^{xxii} The possibility of getting restricted to 800 pounds, and then to 500 pounds, or even down to the 30 pound trip limit on Gulf of Maine cod would have forced longliners and jig fishermen to consider other gears or sell out.

“It appealed to us that are fishing here because we saw what was happening on the Gulf of Maine, you know, they went down 30 pound trip limit on cod. We’d been so cod-centric here. We saw days-at-sea cuts happening on things we didn’t catch; that translated into lawsuits that weren’t creating any conservation. ... And we were like, ‘Man, we’ll be put out of business by amendment 13.’”

John Pappalardo, Chief Executive Officer, CCCHFA
Chair, New England Fishery Management Council

Paul Parker was on the Groundfish Advisory Panel and attended the groundfish PDT. He started hearing about the concept of sectors being floated as an alternative under Amendment 13 and brought the idea back to John Pappalardo who was serving as Policy Analyst for CCCHFA at the time.

In the fall of 2002, as draft documents outlining the concept of sectors were discussed at the PDT, the members of the CCCHFA were meeting regularly in Chatham to consider how this could apply to them and serve as a viable alternative to the inevitable trip limits and cuts to days-at-sea they saw coming. The fishermen read through the PDT documents, talked the ideas over and over for a few months and then decided to commit to trying to make it happen.

The CCCHFA originally proposed two separate sectors to move forward in Amendment 13. The original proposal had a hook sector and gillnet sector. The gillnet sector was not adopted until two years after Amendment 13 was approved.⁷

Fishermen considered what the “do nothing” alternative may look like for them (i.e. lower trip limits and reduced DAS allocation) in contrast to the potential to get away from trip limits for Georges Bank cod that often resulted in regulatory discards and lost revenue.⁸ Fishermen met daily or weekly (depending on the weather) to work through how this might work and how it would benefit them over the status quo option. There were a lot of conversations – on the dock, at CCCHFA headquarters, and within the community.

Securing the Council Votes

With the court deadline looming over the Council and the stark reality of having to make further cuts to the fishing industry to end overfishing of key groundfish stocks, most Council members were not focused on ratifying sectors. Indeed, the final Amendment 13 document was over 1600 pages while the description of sectors was only four pages in length.^{xxiii} It was a small proposal within a complex and controversial management action and many people were apathetic, while others just thought it wasn't going to work.

But there was opposition, particularly within the Commonwealth of Massachusetts. There were fishermen and leaders in ports around Massachusetts who were adamantly against the CCCHFA getting a separate allocation and threatened state politicians to weigh in against the idea. Although the CCCHFA was a relatively small group of fishermen seeking a small allocation of Georges Bank cod, some people perceived it as a grab for allocation while others thought the hook fishermen were asking for an ITQ. Most people just didn't understand the idea of sectors.

At the Council level, CCCHFA set in motion an aggressive public relations campaign and worked hard to secure the votes. They travelled throughout the region, sitting down with state directors, industry leaders, and other Council members to clarify what they were asking for in the amendment. Fishermen from the CCCHFA were calling Council members and fishermen in other ports to explain what they were seeking to do, why they wanted to create a sector and what it would mean for their fishing businesses. It was series of

⁷ In 2010, the hook sector and the fixed gear sector joined together as one sector to gain efficiencies in administration and financial reasons.

⁸ Regulatory discards occur when fishermen exceed their trip limit and are forced to throw fish overboard. This is a legal practice, but causes excessive waste of the resource and undermined conservation efforts and data quality.

multiple person-to-person conversations with fishermen hearing directly from other folks on the water about what this would mean to the viability of their fishing business and their community.

There was surprisingly little debate at the Council about potential allocation schemes for sectors in Amendment 13. Landings history was used as the sole criteria for allocation and ideas to allocate catch based on different criteria such as vessel size and/or DAS weren't considered.⁹ The issue that received the most attention was whether the landings history should be based on fixed years or a rolling baseline. The PDT recommended a rolling five-year period of landings history as the criteria for allocation to a sector. At the time, it was considered a good idea because fishermen who wanted to form a sector in the future would be allocated what they had caught during the most recent five years. However, some Council members didn't want the rolling period for Georges Bank cod. In the end, the Council approved a fixed baseline of 1996-2001 for the Georges Bank cod sector and any future sectors catching Georges Bank cod, but a rolling five-year baseline for any future sectors and for other stocks.

"I think it really flew under the radar. I think really most people were so concerned about the mortality targets, the status determination criteria, and the rebuilding plans. The hook fishermen were viewed as the small fringe group on the Cape. I don't think anyone on the Council recognized it for the game changer it turned out to be in Amendment 16."

Tom Nies, Fishery Analyst
New England Fishery Management Council

The Council provided sectors as an option to create some flexibility in the management system. But a few Council members were troubled with the idea that a sector could, in theory, be allocated 100% of the stock. Therefore a 20% cap on the amount of fish a sector could be allocated was put in place. It is unclear from Council documents what justification was used as the basis for 20%, as allocation caps was not a hotly debated issue for the Council, which was focused on more immediate concerns.

After the Council voted on Amendment 13, however, there was debate regarding what the allocation was meant to cover. Some members of the PDT who had put the idea forward to the Council had envisioned that the allocation for any sector would be a hard TAC for *all* species in the multispecies complex even if the allocation were zero. In return, sector members would be free from any DAS restrictions. However, CCCHFA requested only an allocation of Georges Bank cod as they did not have sufficient documented catch history of other species.^{xxiv} Officials at NMFS interpreted the Council's intentions more narrowly as approval for assigning an allocation of *Georges Bank cod only*. The Georges Bank (GB) Hook Sector was only given an allocation for Georges Bank cod and they were prohibited from fishing for cod in other areas. They were still required to use a DAS when fishing cod, but they were not subject to the cod trip limit and were also free from some of the restrictions on leasing DAS between vessels in the sector (e.g., smaller vessels could lease to larger vessels).

⁹ These types of criteria for allocation were later considered for sectors under Amendment 16.

Amendment 13 Implemented – May 1, 2004

Amendment 13 went into effect on May 1, 2004 with the main purpose to end overfishing on groundfish stocks and to rebuild all of the groundfish stocks that were overfished.^{xxv} It also directed the Council to review the status of the stocks after five years and take corrective management measures if necessary.

Amendment 13 was a complex document that created a new system of fishing permits called “A”, “B” and “C” DAS. Only “A” DAS could be used without restriction. Fishermen could use “B” DAS for Special Access Programs that allowed for limited access to rebuilt fish stocks. “C” DAS were unusable, though theoretically could be reactivated when stocks were rebuilt, but few expected they would ever be reactivated. A large number of permit holders were effectively removed from the fishery by not allocating them any usable DAS. Even the vessels that were able to remain active in the fishery saw dramatic reductions in their “A” DAS allocations to the point that the economic viability of many fishing operations was in question.^{xxvi}

To mitigate the economic impact of Amendment 13, the Council approved measures to allow vessel owners to consolidate DAS from multiple vessels through the purchase or leasing of permits. The Council also created Special Access Programs to allow access to limited, specific fisheries that could be developed without impacting groundfish rebuilding. Several Special Access Programs were implemented through Amendment 13 that used techniques such as developing selective fishing gear or targeting areas or seasons to avoid stocks of concern.

Amendment 13 also created the option for groups of fishermen to voluntarily join together as a “sector” and collectively fish under an annual allocation. A fishery sector’s allocation could be for some or all of the groundfish species based on the sector members’ catch histories. It followed the PWCC model of allowing a group of fishermen to opt out of a portion of the effort control restrictions, in exchange for a hard TAC, to gain economic efficiencies. Sectors provided fishermen with the potential to increase efficiency by increasing flexibility of when and where to fish. The freedom to fish without limits to DAS also invited creativity to try new, more selective fishing gear and pursue underutilized species.

Participation in self-selecting sectors was voluntary. Fishermen could manage the internal operations of a sector to meet social as well as economic objectives. In order to form a sector and receive an allocation of catch, sectors were required to submit a proposal, an operations plan, and an environmental assessment for Council approval through a Framework or Amendment to the groundfish plan.

Making the Concept of Sectors a Reality

The GB Hook sector was adopted in Amendment 13, but the operations plan still needed to be completed for approval by NMFS. Although there was a general framework provided in Amendment 13, there were many design elements that were not detailed, leaving little for

CCCHFA to follow. Development of the GB Hook Sector was a major administrative burden for CCCHFA to undertake but they had secured the staff and the funding to take it on. Fishermen in the CCCHFA paid \$10k each to launch the sector.¹⁰ In addition to writing a formal operations plan for approval by the Northeast Regional Office (NERO), they were also required to prepare an environmental assessment for the sector and establish legally binding contracts among sector members. Furthermore, the Council had given sectors the responsibility for developing a monitoring and reporting system.

The CCCHFA scrambled to get their first operations plan written and approved by NERO and there were months of back and forth and debating to work through all the details. Sectors were all new for NERO as well and it required a lot of internal meetings and discussions with legal counsel. As a result, the GB Hook Sector was not authorized to fish until mid-July, well after the traditional May 1 start date for the groundfish fishery. This was the case for the first few years of operation.

“The back and forth, they [NMFS] just couldn’t seem to get their head wrapped around it. ... It was like second week of July for year one. Year two it’s the first week of July last week of June. Year three it’s the third week of June, middle of June. We lost fishing opportunities those three years.”

John Pappalardo, Chief Executive Officer, CCCHFA
Chair, New England Fishery Management Council

The operations plan required the potential members of the GB Hook Sector to work through a series of important issues about how the sector would function and how it would be monitored. Details regarding how the sector would avoid exceeding their TAC and rules for entry and exit from the sector needed to be documented. Most importantly, the sector was free to design their own system for allocating or rationing the Georges Bank cod TAC amongst their members. As one can imagine, these were not easy conversations to have among a group of fishermen. Members of the GB Hook Sector spent months deliberating their internal allocation scheme, meeting as often as daily over the winter months and then establishing weekly meetings.

The group started with an internal strategic planning approach and mapped out a vision statement with goals, objectives, and metrics for success. The discussions were broader than Georges Bank cod and included a great deal of debate about how to build up a haddock program and whether or not that was going to work.

The approach taken by the GB Hook Sector was to divide their allocation up into monthly quotas to be fished competitively by sector members. If a monthly quota was caught before the end of the month, all sector vessels would be required to stop fishing. If the monthly quota was not taken it would be rolled into the next monthly quota.¹¹

¹⁰ There was also a tax on landings once the sector was up and running. Sector costs at the beginning (in 2002-03) were substantially higher than the present and without federal subsidy.

¹¹ In later years, when new sectors began forming, the GB Hook Sector changed the internal distribution to an individual allotment for each member.

Key Lessons for Engaging the Fishing Community

The concept of sectors as we know them today in New England did not originate in Chatham, but the CCCHFA had enough insight, commitment, and financial motivation to take the initial idea from concept to reality. This took a great deal of persistence and patience as staff and industry leaders worked with members of the fishing community to move discussions forward and find ways to resolve key contentious issues. Many of the strategies used during the initial development of sectors are simple and perhaps even obvious to many, but they were among the tools that helped the CCCHFA move the dialogue forward and find resolution. The key pieces of advice from the early days of sectors include:

1. Secure a financial commitment. Requiring a cash investment by fishermen is important to place true value in a new idea.
2. Be persistent and have patience. You need to be prepared to have the same conversation with some people over and over again until the ideas take hold.
3. It is critical to hold regularly scheduled meetings and have regular attendance. Hold them more frequently at the beginning of developing a new idea.
4. Write up one-pagers and constantly have them available to people at meetings. Continually refer people to the sheet throughout the meeting.
5. Once there is an agreement on something, write it down so that people can see what has already been agreed upon and can move on. Do not allow people to revisit issues that have been decided.
6. Prioritize issues and be able to adapt the agenda. Know when to stick with the agenda and table new topics or when to adapt to the current issues of the group. Don't own your agenda to the point where it is rigid.
7. Keep people fed. Have coffee available. Take breaks.
8. Get beyond the captains and owners. Talk to the crew as these decisions impact them as well. Include wives and girlfriends or other people that may be hearing rumors about new management rules.
9. Go door-to-door. Allocate plenty of time going to people's homes and sitting down with husband and wife together to discuss the options. These are scary decisions and embracing change is not easy.

Groundfish Management Remains a Challenge

Groundfish management in New England is a dynamic process. It seems as though the GB Hook Sector was just getting final approval for their operations plan when Framework 40A and Framework 40B were produced. The Council's goal with these actions was to provide additional opportunities for vessels in the fishery to target healthy stocks in order to mitigate the economic and social impacts from the effort reductions imposed through Amendment 13. These new rules implemented the Category B (regular) DAS Pilot Program^{xxvii}, the Eastern US/Canada Haddock Special Access Program (SAP) Pilot Program, and the Closed Area I Hook Gear Haddock SAP that had been proposed by CCCHFA in Amendment 13.

But there was little time for these new measures to take effect before another set of restrictions was handed down to the fishing industry. As part of Amendment 13, the Council adopted a schedule to make any necessary adjustments to the management program to achieve the rebuilding targets for groundfish stocks. When the groundfish assessment was performed in the summer of 2005 several groundfish stocks were not meeting their rebuilding targets and the recommendation was to further reduce fishing mortality on several stocks, including Gulf of Maine cod, Cape Cod/Gulf of Maine yellowtail flounder, and Southern New England/ Mid-Atlantic yellowtail flounder.

In October 2006, the Council adopted a wide range of changes through Framework 42 to achieve rebuilding of fishing mortality targets. These changes included several changes to the Category B DAS Program and the two SAPs along with implementation of a Georges Bank yellowtail rebuilding strategy. But perhaps the most controversial adjustment for the industry to endure was the introduction of the differential DAS system. Under differential counting, a day at sea fishing is counted at the ratio of 2:1 in certain areas in the Gulf of Maine and Southern New England to reduce fishing effort, essentially cutting a fisherman's DAS in half if he fished in these areas.

“Over the past few years 20-50% of allowable harvest on many groundfish stocks has been unyielded. The groundfish fishery is not reaching the optimum yield (allowable harvest) on most of the stocks and it continues to suffer as regulations become more restrictive to reduce fishing effort on a few. The regulations promote rather than discourage discarding and the limited fishing time has fishermen making poor decisions that impact their safety and promote unsustainable fishing practices.”

Jackie Odell, Executive Director
Northeast Seafood Coalition

These new restrictions on fishing effort were hard medicine for many in the fishing industry who were still adjusting to the impacts of Amendment 13 and fishermen turned to their political leaders to take action. The Commonwealth of Massachusetts and the State of

New Hampshire responded with a lawsuit that charged that the Framework 42 measures were more stringent than necessary. Although there was a period of suspension of the differential DAS provisions, Framework 42 was ultimately reinstated in its entirety in the spring of 2009.

Searching for New Directions Outside the Council Process

Development and implementation of Amendment 13 and Framework 42 had an impact on many fishermen throughout New England. Fishermen were facing difficult financial decisions as they watched their DAS allocations get reduced further and further. The differential counting of DAS under Framework 42 made real to many in the industry just how dysfunctional the current system was. Fishermen and fishing communities were feeling the impact and looking for solutions. There were several concurrent discussions taking place around the region as the Council continued to grapple with groundfish management issues. Below are examples of some of the initiatives underway and the organizations involved.

Northwest Atlantic Marine Alliance - Fleet Visioning Project

One of the earlier industry initiatives for change came from a small group of fishermen and fishing community advocates who began exploring a more decentralized governance model. The Northwest Atlantic Marine Alliance (NAMA) was born because, at the time, they believed there was a “critical mass” of people in New England who shared their belief that there had to be a better approach to protect the oceans and manage marine resources. In 1998, NAMA was incorporated as an independent, non-profit organization “dedicated to pursuing community based management to achieve its purpose of restoring and enhancing an enduring marine system supporting a healthy diversity and an abundance of marine life and human uses through a self-organizing and self-governing organization.”^{xxviii} NAMA was a persistent advocate for management at a finer ecological scale and management through more active governance by local communities. During the Amendment 13 process, NAMA brought forward a management proposal called “The Gulf of Maine Inshore Fisheries Conservation and Stewardship Plan” that would zone the inshore Gulf of Maine and give commercial fishermen authority to make management decisions for the area.^{xxix}

With backing from local and national foundation grants¹², NAMA launched an effort to “engaged diverse stakeholders from throughout the Northeast region to develop a vision for the future of the groundfish fleet.” The Fleet Visioning Project was aimed at developing “a community and consensus-based vision that would guide resource managers as they make difficult decisions to end overfishing while maintaining maximum sustainable harvest.” A second, yet equally important goal for the project, was to build bridges with the broad community of stakeholders in an effort to decrease conflict and advance the idea of taking a more collaborative approach to fisheries management. The project included a written survey and ten regional workshops held throughout 2005. The final results from the project were presented to the Council for their consideration.^{xxx}

¹² Andrus Family Fund, Surdna Foundation, Maine Community Foundation and Sailor’s Snug Harbor.

Penobscot East Resource Center - Downeast Initiative

Established in 2003, the Penobscot East Resource Center (PERC) is a non-profit organization that works “to build alliances among fishermen and community members, foster community-based science projects, and work to strengthen and diversify marine economies.”^{xxxii} PERC’s mission is to secure a future for the fishing communities of eastern Maine by building marine stewardship at a local, community level.

In May 2007, PERC launched the “Downeast Initiative” with funding support from the Gordon and Betty Moore Foundation. Working with scientists, fishermen, community members and legislative leaders, the Downeast Initiative proposed to rebuild groundfish stocks by initiating regulatory policy changes, implementing community-based management practices, and engaging Downeast fishermen and their communities in fishery stewardship. Working with Bob Steneck and Jim Wilson of the University of Maine, the Downeast Initiative focused on the scientific basis for designing an area management system modeled on the fine-scale ecology of the Gulf of Maine ecosystem and advocated using a participatory governance approach nested within the state and federal system.

Midcoast Fishermen’s Association - Area Management Plan

In the spring and summer 2006, the Maine Department of Marine Resources held a series of meetings to hear from fisherman about their ideas for groundfish management and develop a new management regime for groundfish in New England. Glen Libby, a fisherman from Port Clyde, attended those discussions and decided it was time to work toward finding a solution. With support from the Island Institute, a non-profit organization in Rockland, Maine, Libby organized the groundfish fishermen in his community and formed the Midcoast Fishermen’s Association (MFA).

The MFA was deeply concerned about the amount of fish that were being thrown overboard due to the daily trip limits and they began learning more about area-based management from groups like NAMA. They were also experimenting with how changes in gear design could influence catch. By August 2006, the MFA had come to consensus on the Midcoast Fishermen’s Association Area Management Plan. This plan was designed to take into account the historical migratory patterns of fish along the inshore area of the coast of Maine. Under the plan, the Gulf of Maine was divided at 43 degrees latitude and specific gear restrictions were put in place for fishermen who wanted to fish north of this line.^{xxxiii}

The MFA also worked with the Island Institute to create innovative marketing models including starting the first community-supported fishery to market their fish. MFA’s interest in testing innovative gear led them to cooperate with Steve Eayrs, a gear technologist at GMRI, to find ways to experiment with how changes in gear design could influence catch and fish more selectively. Their work helped MFA find a net configuration that retained more legal sized target species and allowed more non-targeted species and juveniles to escape.^{xxxiii}

Area Management Coalition

Eventually, NAMA, PERC, and MFA formed a partnership to advocate for some form of area-based management in the groundfish fishery. Working with conservation organizations such as the Conservation Law Foundation, The Nature Conservancy and The Ocean Conservancy, the group met over an 18-month period, to develop ideas on how to further refine the “The Gulf of Maine Inshore Fisheries Conservation and Stewardship Plan” originally proposed in Amendment 13. With bolstering from the Gordon and Betty Moore Foundation and administrative support from the Island Institute, the group broadened and formed the Area Management Coalition in November 2006 “to develop and advance proposals for area management of groundfish in New England”. The group consisted of 30 individuals with representatives from 11 different organizations including fishermen, conservation organizations, scientists, and others who were concerned about the future of New England’s groundfish fisheries.^{xxxiv}

The Area Management Coalition’s strategy was to create economic incentives that led to an optimum sustainable harvest of fish and a fair distribution of the resource to fishing communities. The initial proposal divided the Gulf of Maine into an inshore and offshore area and created local advisory panels to develop the operating rules for the areas (within the bounds of legal and biological limits set by the government).

Associated Fisheries of Maine Explores Quotas and Sectors

Some industry organizations had also been grappling with groundfish management issues for decades. The Associated Fisheries of Maine (Associated Fisheries) has represented the interest of processors, dealers, and fishermen with members spanning a broad spectrum from trawlers to gillnet vessels and, despite the name, from as far away as Cape May, New Jersey.

With their long history of being a watchdog for fishermen in the federal management arena and involvement on a national marine advisory group, Associated Fisheries was attuned to the momentum building at the national level for rights-based management and hard TACs. Members of Associated Fisheries were familiar with many different types of management approaches being used in the US and abroad and had concerns about how groundfish fishermen would fair under alternative management schemes. Indeed, they had experienced hard quotas for groundfish in the 1980s, which was considered a failure as it resulted in a derby-style of fishing causing wasted fish and safety concerns, among other issues.

Associated Fisheries was a staunch supporter for the DAS system and believed that it could be used to rebuild the groundfish resource, although they did acknowledge that the management measures needed adjustments to deal with the economic hardships some fishermen were facing.^{xxxv} However, given the political landscape in New England and nationally, Associated Fisheries was working through some different scenarios for groundfish management prior to the scoping period for Amendment 16. One option they discussed was the idea of an ITQ system based on individual landing history. Given the

lengthy history of opposition to ITQs in New England, it was less likely that the Council would endorse this approach. Therefore, some members of Associated Fisheries were discussing a sector approach as well.

Community-Based Fishing Sector Feasibility Study

In the summer of 2006, Dan Holland, a resource economist from GMRI began investigating the feasibility of community-based groundfish sectors (e.g. a sector tied to a geographically defined community). The purpose was to determine the objectives of community-based sectors, how they could be organized and implemented, how they could be financed, and whether they were likely to be financially viable. With funding from the National Marine Fisheries Service, Office of Science and Technology and the Northeast Fisheries Science Center, Holland used two communities in Maine—Port Clyde and Portland—as the focus of the case study.

Holland approached MFA to be part of the case study. As a way of introducing the folks from Port Clyde to the idea, Paul Parker from CCCHFA met with the MFA and explained what they were doing in Chatham with the GB Hook Sector. Although some members were unsure whether sectors would work for them, the fishermen from Port Clyde were intrigued and agreed to be part of the case study.¹³

Although the case study in Portland focused on two hypothetical groups of fishermen, there were interviews with Associated Fisheries, other fishermen, city leaders, and staff from the Portland Fish Exchange to inform how a potential sector may function in the community. The discussions with the Associated Fisheries gained traction and seemed more attractive once members realized that they could establish a sector and then treat the sector’s quota as an ITQ among its members.¹⁴

Northeast Seafood Coalition - The Point System

The Northeast Seafood Coalition (NSC) was established in 2002 during the Amendment 13 process to work “for the long-term health of fishery resources, fishing communities, and the fishing industry throughout the northeast”. NSC is an industry-driven membership organization made up of approximately 225 fishermen and fishing businesses throughout New England with headquarters in Gloucester, Massachusetts.^{xxxvi}

NSC was participating in evolving state and federal policy on fisheries management debates and played an active role in the Magnuson reauthorization process. As a result, they, too, were aware of the national movement to establish hard TACs and create a system based more on property rights. Many of their members had also been hit hard by the differential DAS counting under Framework 42 and they were open to change. The NSC Board began looking for new options and felt it was critical to be proactive and develop their own output based management program. Vito Giacalone, a fisherman and head of NSCs policy development, devised an innovative allocation and management program termed the “Points System”.

¹³ This eventually resulted in the MFA submitting a sector proposal in 2007.

¹⁴ Associated Fisheries submitted a sector proposal in 2007 based on an internal ITQ for the sector.

The intention of the Points System was to create a smooth transition from the historical input based system to an output based system. The allocation scheme would combine a capacity formula (DAS, vessel length, and horsepower) and catch history into a new currency – Multispecies Points. The Multispecies Points would in turn be used as currency to catch fish and points would be deducted based on the pounds of fish harvested. The point values for each species within the groundfish complex would vary depending upon the health of the stock (i.e. healthy stocks would have low point value and overfished stock would have a higher point value). By using this type of weighted pricing structure, the NSC was trying to create a system that could recognize the investments people had made to date in the current DAS system and provide flexibility to adjust to the highly fluctuating and dynamic nature of groundfish stocks.

Rhode Island Fluke Conservation Cooperative

In 2005, Chris Brown, President of the Rhode Island Commercial Fishermen’s Association, was invited to a workshop in California hosted by the Sand County Foundation. The workshop, called “From Racing to Rights: Emerging Strategies for Improving Fisheries Management in North America”^{xxxvii}, brought together a small group of fishing industry leaders to learn about and discuss examples of new fisheries management approaches. With support from the Sand County Foundation and several other foundations, a second conference was held in 2007 in Mystic, Connecticut to bring some of these new management ideas to New England fishermen. The ideas presented at these workshops had an impact and a small group of fishermen in Rhode Island began discussing the concept of a sector for the state’s fluke fishery.

The Rhode Island Fishermen’s Association worked with the University of Rhode Island Sea Grant and EDF to develop the Rhode Island Fluke Conservation Cooperative (RIFCC), a pilot fluke sector program. Although the formation of the RIFCC was based on federal requirements for sectors, fluke is a state fishery and the sector was implemented through the state of Rhode Island.^{xxxviii}

There were eight fishermen who joined the RIFCC during its initial year in 2009 to participate in a 37-week summer flounder sector allocation program. The allocation was based on landings history from 2004-2008. Rhode Island viewed this as a pilot program to test how a catch-share approach would work as a fisheries management alternative.

Northeast Multispecies Fishery Capacity Reduction Committee

One tool to reduce fishing capacity in the US and other countries has been to fund a vessel and/or permit buyout program. After the groundfish fishery was declared a disaster in August 1994, Congress approved funds for a vessel buyout program which was part of a comprehensive economic recovery package designed both to alleviate short-term hardship within affected communities and to allow stock recovery.^{xxxix} But these efforts had little impact. Although dramatic reductions in capacity had been implemented through Amendment 13, there were still more DAS and permits available than were active in the fishery. In 2004, approximately 44,492 DAS were allocated to 1,484 permit holders, yet just

over 30,000 DAS (68%) were used by 773 permit holders.

In 2003, the fishing community was again looking for ways to reduce fishing capacity in the New England groundfish fishery and Sea Grant hosted a series of workshops up and down the New England coast to generate a discussion regarding capacity reduction among the industry. One of the conclusions of those workshops was the need for the industry to take the lead in crafting any proposals involving a buyout of fishing vessels or permits. In late 2005, the Northeast Multispecies Fishery Capacity Reduction Committee (Buyout Committee) was formed to begin working on an industry-funded buyout proposal. The committee was made up of groundfish fisherman and other interests, with staffing provided through a contract with the State of Massachusetts, Division of Marine Fisheries and administrative support from the Council. This was an industry-led attempt to improve the financial future of the groundfish fishery while allowing those who would like to exit the fishery a legitimate, sensible way of doing so.

The Buyout Committee solicited input via a questionnaire and ten public meetings throughout the northeast to craft their proposal. The Buyout Committee worked throughout 2006 to achieve consensus on a buyout plan, but was disbanded in 2007 after committee members could no longer agree that proceeding with the vessel buyout was in the best interest of the groundfish fishery. Buyout Committee members cited concerns about the leasing market and raising false expectations. Some of the concerns cited by committee members were the perceived disconnect between a buyout formula and a new allocation formula under consideration in Amendment 16, concern about individual repayment, and limited assurance that the program would achieve its objectives.^{xl}

Gulf of Maine Research Institute - “FISHTANK” Dialogue

Among the other discussions happening within the industry, was an effort lead by GMRI to promote community-wide dialogue for a shared, forward-looking fisheries management approach. GMRI’s “FishTank” initiative provided the opportunity to forge relationships outside of the formal Council process. It provided a forum for vetting ideas, refining options, and educating each other about the intended and unintended consequences of alternative management approaches for New England’s groundfish fishery.

With support from the Gordon and Betty Moore Foundation and the Alex C. Walker Foundation, GMRI invited key industry leaders, Council members, and Council staff to a two-day workshop to discuss, debate, and define a proposed suite of options for groundfish management in New England prior to the scoping process for Amendment 16. Attendees at the workshop included members of all the major groundfish associations, six members of the NEFMC and key Council staff. The outcome of the workshop was a better understanding of the various ideas being discussed for management of the groundfish fishery, new ideas on how these concepts could be integrated, and a greater appreciation for the perspectives of others around the table. Although the group did not agree on a single strategy for moving forward with groundfish management, they did agree to forward a consensus statement to the Council which stated, *“We accept some type of point system (e.g. output control, removing input controls, lands all fish managed under the plan, real-time reporting and accepted*

allocation formula not on a species-by-species basis) as a concept to allocate access to catch and may embed within that some type of sector and/or area-based approach with a biological backstop.”

Amendment 16 - Inviting Alternatives

In November 2006, the Council began work on Amendment 16 to the Multispecies Fishery Management Plan and initiated the formal scoping process. The amendment was a planned adjustment to continue the rebuilding programs adopted by Amendment 13 and it was expected to result in further reductions to DAS. Some members of the Council were critical of the DAS approach and called for a fresh look at alternative management approaches.

The Council decided to consider proposals for alternative management systems, such as a hard TAC system, area management, individual quotas, or fishery sectors as part of the scoping process to improve the economic prospects for the industry.

During the development of Amendment 16, the Council experimented with a new approach. At the beginning of the scoping period, the Groundfish Committee met with the Groundfish Advisory Panel and the Recreational Advisory Panel in a facilitated workshop format to develop the standards or principles to guide the development of Amendment 16, including the process for accepting alternative management system proposals. These recommendations were considered by the Council and published for authors of alternative management system to consider when drafting their proposals.^{xli}

Soliciting Public Input

Eight scoping hearings were held from Maine to New York to gather public comments regarding the future management measures for groundfish. Although notice of the scoping hearings was mailed to over 1,800 interested parties, attendance was light, with only one attendee at one hearing and fewer than ten speakers at several. The majority of comments were received in writing.

A range of comments was received during the scoping process for the Council to consider. Several of the comments focused on changes to the DAS, including a specific proposal from a fisherman in New Hampshire called the “Performance Plan.” There were several other specific proposals submitted during scoping. These included:

- Individual Transferable Fishing Quota (ITQ) Proposal submitted by the Associated Fisheries of Maine: The proposal detailed options for initial allocation of catch based on a combination of DAS and permit catch history, limits on ownership and acquisition of quota, transfers of quota, and management responses to an underage or overage of catch. (It is worth noting that this proposal was submitted for consideration *only* if the current DAS system was going to be abandoned.)
- “The Oceana Proposal” submitted by Oceana, a national ocean conservation organization: This proposal established firm limits (hard TAC) on catch and bycatch as well as limits on groundfish bycatch incurred by other fisheries. The maximum allowable mortality level for each stock would be determined and then divided by

time periods (e.g. monthly or quarterly) and by area. The proposal also made several suggestions regarding monitoring requirements for vessels.

- “Stewardship Plan” submitted by Richard B. Allen, a fisherman and fishery consultant from Wakefield, Rhode Island: This proposal would allocate annual shares of each multispecies stock to each permit holder based on the permit’s “effective fishing capacity.” The plan also required permit holders to submit a “stock utilization plan” and made several other changes to the current groundfish plan.
- Point System Proposal submitted by the Northeast Seafood Coalition: This proposal would assign a point value for each permit based on DAS allocation, baseline characteristic of the vessel, and past fishing history. Permit holders would be charged points for landing regulated groundfish with point values for each regulated stock varying based primarily on the biological status of the stock. As fishermen grew closer to the target TAC for each stock, the point values would increase to discourage targeting these stocks and encourage fishing on more plentiful stocks. Mechanisms to track catch and points, free transferability of points, and retention of all legal-sized groundfish were outlined in the proposal.
- Area Management Proposal submitted by the Area Management Coalition: This proposal focused on the idea of defining management areas based on ecological and biological uniqueness and limiting the annual harvest of fish from that area. Fishermen and local stakeholders from the area would be responsible for establishing area-specific management rules. The long-term vision was to create a local governance structure that would be nested within the current management system. The area boundaries would be permeable so vessels could fish in more than one area and real-time catch reporting would be designed and implemented.
- Downeast Initiative submitted by PERC: This proposal offered support of the Area Management Coalition proposal and suggested Downeast Maine as a pilot area management site. Specifically, the proposal advocated for a pilot area corresponding with the Eastern Maine Coastal Current and immediately adjacent deep water. The proposal also included establishing a local governance unit that would have the authority to set the rules governing fishing within the area and be nested within the Council system.
- DAS “Performance Plan” submitted by Eric Anderson, a fisherman from Portsmouth, NH: This proposal represented the development of management measures within the current DAS system. A differential DAS counting system similar to the measures in Framework 42 would be maintained, but the ratio (and hence number of days assessed per trip) would change depending on the species landed. Landing species of concern would have a higher rate of differential counting.
- Sectors: Of note, there were also two organizations that indicated they would be submitting proposals to establish new sectors by May 1, 2007 as provided for

already under the Amendment 13 guidelines. In addition, GMRI submitted comments suggesting improvements to the Council's current sector program.

In an attempt to be efficient and comprehensive in its approach, the Council delegated much of the work in developing Amendment 16 to a subset of Council members who form the Groundfish Committee (formerly the Multispecies Committee). The Groundfish Committee, in turn, would solicit input from the Groundfish Advisory Panel, made up of commercial fishing interests, as well as the Council's Recreational Advisory Panel. The various management changes being considered by the Groundfish Committee were also assigned to the PDT for further technical analysis.

After scoping ended, the Council, the Groundfish Committee, the Groundfish Advisory Committee and the PTD reviewed, debated, and analyzed the various alternatives proposed by industry over the next six months. Given the complexity of fisheries management, especially with regard to a multispecies plan such as groundfish, the Council process relies heavily on the PTD to work through many of the details. Therefore, the Groundfish PDT had a fairly strong role in the Council process as Amendment 16 was being developed. In general, the Groundfish Committee would discuss an idea and provide fairly loose direction to the PDT who, in turn, would analyze the proposed management approach. Often, the PDT would draft language or a description of how a policy would work and include a white paper or amendment language for the Committee to consider. The Groundfish Committee would review these analyses and conclusions and vote on the specific management measures to forward along to the Council for their approval. Unfortunately, it was often the case that the Council would further debate the management measure and, unable to make a decision, refer the proposal back to the Groundfish Committee who turned to the PDT for further guidance. This "ping pong" sort of decision-making process was often a source of frustration as it seemed to create confusion and lack of clarity.

"The Committee would bring ideas forward and then the Council would change the direction. It was frustrating to the Committee and extremely frustrating to the PDT and staff. We spent a lot of time reworking when that time could have been to continue on other alternatives."

Rip Cunningham, Chair, Groundfish Committee
New England Fishery Management Council

The PDT reviewed the alternative management proposals put forward during scoping. They determined that the Point System had some interesting characteristics, but it would be extremely complicated to figure out the points and require NMFS to expedite the rule-making process. Even with an expedited process, it appeared as though the points could only be adjusted once per month, which wouldn't be frequent enough for the system to be

most effective.¹⁵ As these discussions were happening at the PDT, someone floated the idea that the Point System could be used as an allocation method *within* an established sector. The Northeast Seafood Coalition had invested time and money in working through the details of a Point System and they continued to pursue the idea to resolve the issue, but they also began considering how points may fit with a sector approach.

The Northeast Regional Office was in support of considering alternative management concepts, but they were deeply concerned about the timing of Amendment 16 and the legal mandate to end overfishing by implementing new management measures by May 1, 2009. Having just recovered from the Framework 33 lawsuit and subsequent mediated agreement, they had a more cautious approach. In addition, while the Magnuson reauthorization had established the requirement for ACLs and AMs, the specifics were left to National Oceanic and Atmospheric Administration to articulate through the rule-making process. Therefore, it was unclear at the time how these new provisions would impact Amendment 16.¹⁶

During the early discussions regarding Amendment 16, the Council debated whether there was adequate time to evaluate the new management alternatives in addition to refining the current DAS system. NERO felt the workload to implement Amendment 16 by May 1, 2009 while meeting the new requirement for ACLs and AMs would exceed their staffing capacity and they frequently voiced these concerns.

Although NERO was supportive of output-based systems such as quotas and the concept of having fishermen take more responsibility for the resource, they continually resisted the idea of moving forward with alternative management options in Amendment 16 and suggested moving these more significant management changes to a future Amendment 17 process for consideration. NERO's initial resistance to entertaining new management options in Amendment 16 in context of the MSA requirements was a source of real aggravation for industry members who had invested time and energy trying to respond to the Council's call for a new management scheme for the groundfish industry. The start-stop process was also confusing for industry on the docks as it left mixed messages on whether real change would happen or whether Amendment 16 would just end up as another cut to DAS.

Technical Workshops to Refine Alternatives

The Gulf of Maine Research Institute recognized early in the Amendment 16 process that the Council had the potential to redefine the institutional mechanisms and regulatory terms for New England's groundfish fishing fleet for the next decade. When the alternative

¹⁵ The Northeast Fisheries Science Center hired Chris Anderson of the University of Rhode Island to conduct an economic experiment in a laboratory setting using student subjects to test whether fishing behaviors responded to points. The experiment also tested for potential discard incentives, and potential derby effects to avoid point increases.

¹⁶ In fact, the final rules that provide guidance to the Councils on how to comply with new annual catch limit (ACL) and accountability measure (AM) requirements for ending overfishing of fisheries were not finalized until January 16, 2009 and became effective on February 17, 2009.

management measures were proposed during scoping, there was a clear need for a dedicated dialogue between those proposing the innovative management strategies and those tasked with stewarding them through the Council's consideration process.

With backing from the Gordon and Betty Moore Foundation, GMRI worked with the Massachusetts Marine Fisheries Institute to co-host a series of technical workshops to enable in-depth exploration of the Point System, Area Based Management, and modified DAS plans. These workshops, held in April and May 2007, convened the plans' proponents as well as Council members, staff from relevant Massachusetts, New Hampshire, Maine, and Rhode Island agencies, staff from the NOAA Fisheries Regional Office and the Northeast Fisheries Science Center, Groundfish Advisory Panel members and the Groundfish Plan Development Team. While external to the federal management process, the broad participation by fisheries managers was a testimony to the value managers found in this complementary process. The non-regulatory, neutral forum gave proponents an opportunity to answer questions about the proposed plans and learn what additional technical changes they needed to provide the Council to strengthen the plans.

GMRI convened the technical workshops to provide a neutral venue for dialogue, where the proponents of these alternative management structures could further refine their ideas in a collaborative effort. The Council did not request these workshops and they served no official role in the Council's consideration process. Rather, they served as a way to get people interested in improving fishery management into a room together where ideas could be discussed openly and collaboratively. The workshops were effective at helping the proponents of various alternatives better understand what other fishermen were proposing and their motivations. They broke down barriers as they created a unique opportunity for different parts of the council process to interact in a way that they had never done before.

Sector Policy Debated Among Council

At their February meeting in 2007, the Council created a Sector Omnibus Committee and tasked the Committee with developing an omnibus amendment for all Council fishery management plans in order to have a consistent approach to sector management among the various fisheries. The Committee met three times to address the issues and questions raised by the Council, as well as other issues and questions raised during its deliberations. They made several policy suggestions to the Council regarding sectors and the Council formally approved a Sector Policy in June 2007 to be passed on to individual species committees for their development of sector programs. The Council policy recognized the significant differences in fishery operations, target species, and management strategies by allowing for some degree of flexibility in the various sector programs that may be adopted for each individual fishery.^{xlii}

The Council Sector Policy defines a sector as:

a group of persons holding limited access vessel permits who have voluntarily entered into a contract and agree to certain fishing restrictions for a specified period of time, and which has been granted a total allowable catch (TAC) in

order to achieve objectives consistent with applicable FMP goals and objectives.^{xliii}

The policy also included guidance about allocation, mortality controls, administration, and monitoring but left much of the details to be worked out at the species committee level. The Council's sector policy did, however, formally adopt a consistent policy for dealing with overages by sector and non-sector vessels based on Amendment 13.

If the sector does not exceed its assigned share or percentage in a given fishing year, but other sectors or the common pool do, the sector's allocation will not be reduced, if the sector exceeds its annual allocation but others do not, then the sector share will be reduced in the following year, and if all sector and open pool vessels stay within their shares, but the resource condition requires a reduction in catch, then all groups will take reductions.^{xliv}

The Sector Committee members discussed establishing a maximum size of sectors, either as a percentage of TAC or percent of the number of permits in a fishery, due to the concern over a sector achieving monopoly control over the fishery, but the final sector policy adopted by the Council remanded that decision to the individual species committees for their consideration when developing sector policy within fishery management plans. The Council did, however, adopt a policy to address concerns about the potential for consolidation within a sector leading to idle boats increasing capacity on another fishery. Therefore, the sector policy requires each sector application to identify potential redirection of effort as a result of sector operations and propose limitations (also called "sideboards") to eliminate any adverse effects on effort in another fishery if necessary.

Sectors as Placeholder

The industry leaders were watching the Council process with a fair amount of skepticism and were making plans for alternative scenarios. Many had anticipated that Amendment 16 would be nothing other than further reductions to DAS. The introduction of ACLs and AMs through the MSA reauthorization created further anxiety and uncertainty about how the current DAS system would fare.

Although working on developing alternative management options, Associated Fisheries of Maine and the Midcoast Fishermen's Association were intrigued by the idea of creating a sector for their groups. Both groups had worked with Dan Holland at GMRI on a Community-based Sector Case Study and they decided to submit proposals and environmental assessments needed to indicate their interest in forming a sector for the May 2009 fishing year.

The Northeast Seafood Coalition also submitted sector proposals to keep open the opportunity for their members. They realized that the Points System needed adaptive and real-time changes that NMFS wasn't prepared to do under the Administrative Procedures Act. Perhaps imbedding the Point System within the sector approach would be more beneficial. The NSC also wanted to be at the table to design the decision-making process

and they were concerned about how allocation policy would be determined. In an attempt to provide an appropriate sector for the different interest groups among their membership, the NSC submitted 12 similar sector proposals that covered various gear types and geographic locations.

The Cape Cod Commercial Fishermen's Association was working with a group of fishermen to form another sector called the Tri-State Sector and fishermen from Boston and Martha's Vineyard also submitted proposals (Pier 6 Initiative and Vineyard Sector Plan). In total, there were 17 new sectors being proposed, in addition to changes to the current two Cape Cod sectors, for consideration by the May 1, 2008 deadline.

Council Decides on Alternatives for Amendment 16 – June 2007

The Council began discussing the alternative management approaches proposed by industry in February 2007. At that meeting, the Council decided against further consideration of an ITQ proposal due to concerns that they would not be able to complete Amendment 16 on the required schedule. There was also concern that after investing substantial time developing an ITQ program it might not pass the referendum vote by a two-thirds majority of permit holders as required by the MSA for New England fisheries.

The June 2007 Council meeting in Portland, Maine marked a turning point in the development of Amendment 16 and future groundfish management in the region. The Council was under pressure to meet the May 1, 2009 deadline, a deadline required by the rebuilding associated with Amendment 13. The May deadline meant that the Council had to submit a final Amendment to NMFS by September 2008, which left little time for other options.

Just six months after alternative management approaches were proposed during scoping, the Council voted to move forward with Amendment 16 to include *only* modifications to the existing days at sea system and consideration of the 19 sector proposals that had been submitted to date. Citing limited time and resources, the Council designated Amendment 17 as the mechanism to further develop all management options including but not limited to area management, DAS performance plan, point system, and ITQ management. It was a unique situation for the New England groundfish fishing industry. Suddenly, there were industry groups that were supporting very different approaches now gravitating to sectors as potentially the only opportunity for meaningful change in Amendment 16. However, there were a great many details to be worked out in order to get groundfish sectors in place.

"It started from something really open-minded to new management ideas down to well, we can't do anything new and we need to just stick to days at sea and for those folks that are interested in putting forward sector proposals we'll consider sector proposals too but that's all we're going to do."

Jackie Odell, Executive Director
Northeast Seafood Coalition

Development of Sectors Gains Momentum

Given the Council's decision to delay consideration of any new alternative management strategies, the focus turned squarely to sectors as the only alternative to the DAS system. The experience of the GB Cod Hook Sector and the GB Cod Fixed Gear Sector provided some insights, but both of those sectors had been allocated only cod and operated under the DAS system for the remainder of their groundfish catch. Now sectors were requesting allocation for all groundfish stocks.

There were, however, some useful lessons from the Cape Cod sectors. NERO had a better sense how long it took to move a sector's operation plan through the complex rulemaking process and how to evaluate requests for exceptions from certain rules. The Council also realized that the 5-year rolling baseline defined under Amendment 13 was not feasible. All of the new sectors used the Cape Cod operations plan as a basis for their plans as it was the only example of what NERO would accept. The CCCHFA was open to sharing what they had learned and provided valuable advice to the new sector organizers.

Amendment 13 had established some general sector policies, but it was unclear in many places. The monitoring requirements were not very explicit and details regarding monitoring and reporting needed to be resolved. There was also a need to clarify how the sectors impacted other rules and how sectors would interact with vessels that were not in a sector (i.e. common pool vessels).

Allocation – Who Gets What

Clearly, the most difficult and controversial issue to resolve for sector development (or any quota system) was the question of allocation—determining who gets what. The sector concept is based on allocating a portion of the TAC to a group of fishermen. But, how do you determine what portion the group is allocated? In Amendment 13, the allocation was based on rolling accumulated catch histories over the previous five years for each member of the sector. For the Cape Cod sectors, landings were based on fixed fishing years (1996 through 2001 for Georges Bank cod). The Council made a special effort to note that the accumulated catch history was allocated to the sector *as a whole* and not necessarily to individual vessels within the sector. The sector would then have to develop its own set of rules to distribute the sector's allocation among its membership.^{xlv}

The Groundfish Committee Weighs Options

There were several discussions among the members of the Groundfish Committee to provide new options for allocating catch to the new sectors that had been proposed, but the Committee remained undecided and waffled back and forth on how to proceed. The Committee brought up sector allocation at its May 2007 meeting and expressed their opinions on the baseline and allocation issues and whether new sector proposals should be allowed to move forward in Amendment 16. Some Committee members felt the current 5-year rolling baseline established in Amendment 13 was problematic and should be changed, and that sectors should not go forward until this was resolved. Others noted that

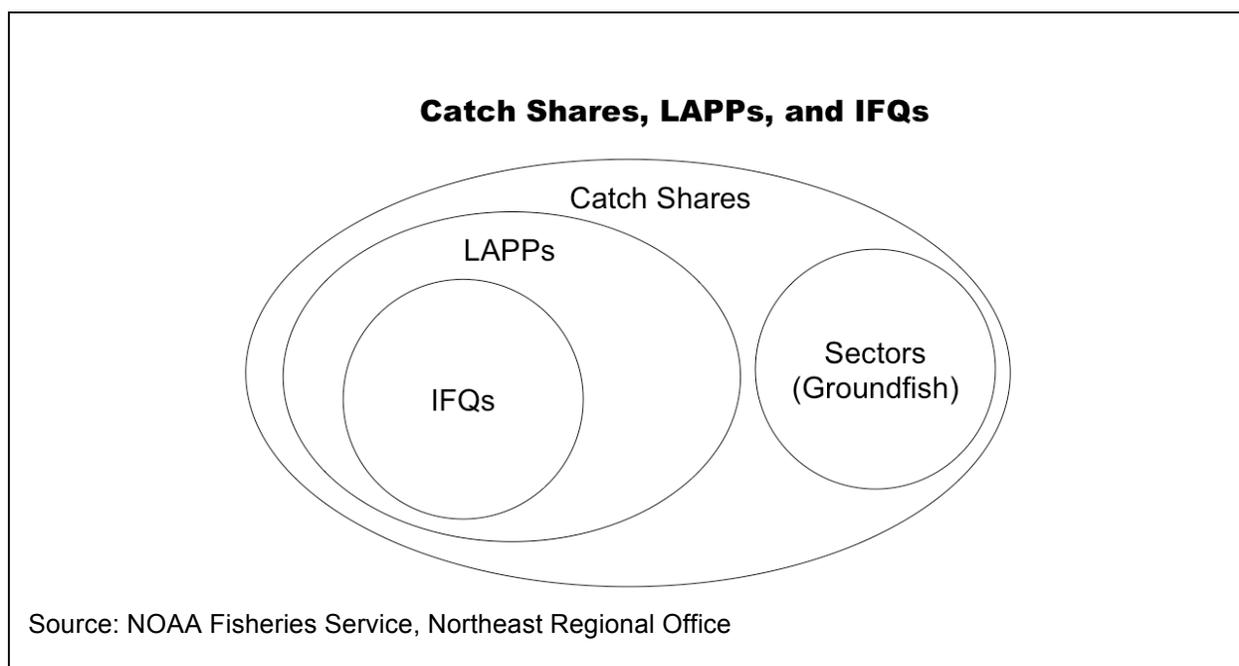
the existing rules were debated in Amendment 13 and the Council should not prevent fishermen from forming sectors under those rules. Another factor in the discussion was the ongoing work of the Sector Omnibus Committee, who was recommending a fixed baseline for all sectors, rather than the moving baseline as adopted by Amendment 13. Further complicating the Committee's deliberations on allocation was the over-riding concern that the Committee needed to work on legally mandated effort control measures for Amendment 16 while addressing the ACL and AM requirements of MSA. At one point in the process, the Committee recommended delaying consideration of new sectors until a future Amendment 17, but that decision was later reversed.^{xlvi}

Allocation of groundfish catch was contentious for a number of reasons. One option debated by the Committee was the criteria for allocation. In Amendment 13, the allocation had been based solely on catch history for a 5-year period of time. However, some Committee members were advocating using a method that takes into account vessel capacity through a formula based on vessel size, vessel horsepower, and allocated DAS. This was met with some resistance. As the number of DAS had been ratcheted down, some fisherman had invested heavily in purchasing additional permits with DAS as the currency to allow them to continue to fish. Conversely other fishermen really believed and predicted that the fishery would shift towards a quota-based fishery, so they invested in permits with catch history on them. That created a split in the fleet as the Committee debated what criteria to use to establish the allocation for sectors.

Another factor the Committee needed to grapple with was the time horizon with which to determine the allocation. How many years and what years should be used to set the allocation? The rolling allocation formula already in place for sectors in Amendment 13 had been reconsidered and deemed impractical by the Sector Omnibus Committee. The groundfish fishery is dynamic and the opportunity to catch fish has varied greatly for different gear types and fishing harbors based on the health of the stocks throughout the region. Many small boat fishermen with less ability to travel great distances would argue that the collapse of some stocks in recent years had made their potential catch drop. Some fishermen also re-directed their efforts onto other species that were not overfished. They would argue for a longer period on which to base catch history as it gave them a better opportunity to include their more successful years. Other fishermen had done well in recent years and wanted the allocation formula to favor those years. In the end, everyone was out to ensure that whichever way the TAC was divided, it would maximize the benefit to them as the individual. But that was problematic for sector-based management. Fishermen and Committee members alike often forgot that the purpose of the allocation scheme was to determine the permit's contribution to a sector but fishermen could only use their allocation *by joining a sector*.

Limited Access Privilege Program and Sectors

One area of great confusion for the industry and source of concern for many was the fine line between quotas for sectors and individual quotas. The MSA reauthorization provided that “a Council may submit, and the Secretary may approve, for a fishery that is managed under a limited access system, a limited access privilege program (LAPP) to harvest fish if the program meets the requirements of [the Act].” It further defined a LAPP as a federal permit to harvest a quantity of fish representing a portion of the total allowable catch that may be received or held for exclusive use by a person. LAPPs include programs such as IFQ management but specifically did not include community development quotas.



The MSA specifies that individuals, fishing communities, and regional fishery associations may be eligible for and participate in a LAPP and establishes criteria for the development and allocation of LAPPs. These criteria include fair and equitable initial allocations with consideration of relevant factors. Measures to assist and facilitate participation and prevent excessive shares must also be included.

Very early in the allocation discussions for sectors, there was disagreement about how the groundfish sectors would fit within the new LAPP framework. Some stakeholders felt strongly that sectors were just an ITQ program in disguise and that they should legally fall under the LAPP provisions of the MSA. In fact, it was well known that some fishermen organizing sectors were considering dividing the sector’s allocation based on what the individual fishermen brought to the sector (i.e. operating like an ITQ within a sector.) However, because allocations are not technically granted to individuals, but instead granted to the sector, they are not legally considered LAPPs.^{xlvii}

It was a fine line for fishermen to understand and it created a fair bit of confusion in developing sector allocation policy. To participate in a sector, a fisherman must have a verified catch history that they bring to the sector. However, it is the aggregate catch history of all sector members that is allocated *to the sector as a whole*, not to an individual. The sector as a whole determines how best to use the allocation. In contrast, under an LAPP, an individual fisherman is allocated a catch share directly and they can use the allocation as soon as it is issued. To distinguish from allocation under an LAPP, a new term “potential sector contribution” or PSC, was coined.

This distinction between allocating catch to an individual versus allocating a PSC to an individual became a source of unease. Once a fisherman voluntarily joined a sector, it was the sector that received the allocation and the sector members, not the individual, who determined what portion of the sector’s allocation each member could fish. NMFS was only concerned with the allocation to the sector and left the internal negotiations up to the sectors themselves. As the Groundfish Committee and Council grappled with questions of allocation and details such as trading between sectors, there was always a question if they were crossing the line and treating sectors as LAPPs.^{xlviii}

There were a lot of changes to sectors discussed under Amendment 16 that were critical to making them work in the end. The notion of moving quota from sector to sector was a significant decision, as it had not existed in the current sector policy under Amendment 13. Tradability among sectors was an important policy decision particularly for the smaller sectors that needed to increase their quota of certain stocks. The term “annual catch entitlement” or ACE was created to define the catch rights allocated to the sector, denominated in pounds for each species-stock (e.g., Gulf of Maine haddock), and good for that fishing year.^{xlix} Sectors were allowed to trade ACE and carry forward up to 10% of their initial ACE to the next fishing year as a buffer to reduce the risk of an overage or loss of potential catch if the sector was conservative in its management of ACE.

Industry Begins Collaborating

As Amendment 16 was being developed, the groundfish fishing industry was divided politically. Fishermen from different harbors with different vessel sizes and gear types had battled each other during the Amendment 13 process and ensuing mediated settlement. The concept of sectors had brought some of the industries most powerful leaders to begin a new dialogue.

If sectors were indeed going to move forward, the allocation issues and monitoring requirements needed to get resolved. GMRI took the initiative to gather the industry together for a one-day meeting in July 2008 to develop conceptual agreement on recommendations to the Council regarding how catch should be allocated among sectors and how sectors should be monitored and managed. Although a final allocation formula was not agreed upon at the meeting, the group of industry leaders did come to unanimous agreement to recommend to the Council that the catch history (and other mechanisms to the extent used) should go as long as possible (from 1996-2006, all inclusive) for the allocation baseline considered by the Council.

Finding a Common Vision

The allocation formula for sectors was (and is) the most contentious part of Amendment 16 and the Council struggled to make a decision. One of the key ingredients missing for the Council to make allocation decisions was a common vision of how the fishery should be managed. Despite the work of the Fleet Visioning Project and other efforts to articulate a common vision, the Council was divided on how to approach allocating the resource.

"I think the Council was conflicted for so many years through 40 frameworks and how many amendments. We really tried to give everybody what they wanted for so long, that we didn't pay enough attention to what we had to. There is no common vision for what the fishery should look like."

John Pappalardo, Chief Executive Officer, CCCHFA
Chair, New England Fishery Management Council

In January 2008, the Council set aside an entire meeting to discuss PSC formulas to be included in Amendment 16. At the beginning of the meeting, members of the Council advocated for further clarification on the objectives for determining PSC in Amendment 16. After much debate, the Committee adopted the following broad objectives for sector allocation:

1. address bycatch issues;
2. simplify management;
3. give industry greater control over their own fate;
4. provide a mechanism for economics to shape the fleet rather than regulations (while working to achieve fishing and biomass targets);
5. prevent excessive consolidation that would eliminate the day boat fishery.

Although these provided a direction for the Council, the objectives did not suggest specific criteria for evaluating the various allocation formulas. At that same meeting, the Council approved six sector allocation alternatives to be included for consideration in Amendment 16. The formulas proposed for calculating PSCs for sectors in the Amendment 16 public hearing document included variations on using landings history only as the baseline, using a combination of landings history and vessel capacity, or using landings history and DAS. There was also an option specific to the Cape Cod sectors that kept the current allocation formula for Georges Bank cod based on landings history for fishing years 1996-2001.

In the end, the Council did not select a preferred alternative for the final public hearing document for Amendment 16. Instead, all the allocation alternatives were listed with no sense of which way the Council was leaning prior to public hearing. It seemed as though every time the Council considered allocation, they would debate the various allocation formulas and then defer to the next Council meeting.

Many people were frustrated with the Council for their lack of conviction regarding the allocation formula for sector members. Although some suggested that an earlier decision on allocation would have given the Council more time to work on the myriad of other

details that were part of the amendment process, others questioned whether an earlier decision would have been practical because of the political pressure to revisit it before sending the draft Amendment 16 out for public comment.

Temporary or Permanent Allocation

One of the questions weighing on the Council and on other people watching the process for Amendment 16 was whether the sector allocation being discussed was temporary or if, in fact, the allocation formula decided for Amendment 16 would have implications beyond sector management and serve as the basis for a future ITQ program. When the Groundfish Committee discussed sector allocation during its September 2007 meeting, it was clear from public comments that the industry feared sector allocation would lead to a permanent allocation for the groundfish fishery.

“Does anyone believe that what we decide here will not carry over into the entire fleet when we eventually do ITQs? What you decide is what is going to go for the rest of time.”

“This should be stated somewhere: this is not an attempt to permanently allocate; this is in response to the required midterm correction. There was discussion at the last committee meeting that allocation secured through a short process would in all likelihood flow through. I think it important that in one of these motions that this is not our intent – permanent allocation is not our intent.”

Public comments at Council meeting, January 24, 2008

The Amendment 16 document speaks specifically to this issue. *“The Council may choose a different allocation approach for this fishery in the future. The Council cannot guarantee decisions made by a future Council will use these same formulas.”* In other words, a current Council cannot prevent a future Council from reversing its decisions. Although this is legally the case, many believed that once the groundfish resource was allocated to various sectors through Amendment 16, it would be extremely hard politically to change directions.

Establishing Accumulation Caps

Under Amendment 13, there was a 20% accumulation cap placed on sectors and on individuals within a sector to address concerns about excessive consolidation in the fishery. However, the Council voted to remove the 20% cap and decided not to include a cap on sector accumulation in Amendment 16. The argument at the time was that any accumulation limit for sectors would not limit consolidation, but merely have the effect of causing people to split sectors and continue to trade as they wanted between the two sectors. In addition, the economic analysis indicated that no one sector would acquire enough allocation so removing the cap was not a detriment to the fishery. Some industry members also expressed concerns that accumulation caps would limit the sector’s ability to recruit and keep members.

The Council also decided not to place any limits on individual allocation. Part of the reason the Council didn't deal with accumulation limits for individuals is that many members thought the limits could be easily side-stepped by using different permit numbers or different corporate names that were all owned by the same family, but were not necessarily legally the same corporate entity. In the end, the Council felt that because the sectors needed to be reviewed and approved every year, establishing accumulation caps could be revisited in the future.¹⁷

Information to Weigh in on Allocation Options

One of the sources of greatest frustration for the fishing industry as they tried to assess how the different allocation alternatives would impact them individually, was the inability of NMFS to provide fishermen with their landings history for their permits. Early in the process to develop sectors, groups proposing sectors and groups providing technical assistance to sectors were told that the landings history attached to a permit was confidential information and could not be released without written authorization of the previous permit owners. The currency up to this point was days-at-sea, not landings. Fishermen buying permits could see the DAS linked to that permit, but they were denied access to the landings history due to NMFS interpretation of the confidentiality provisions in Magnuson.

"The agency had not initially planned on even sending people their potential sector contributions. That was all something that we were doing through our sectors to make sure that the industry was informed. We spend a lot of time doing industry letters, and rosters, and data; getting all that information to the permit holders because they didn't have the information that they needed."

Jackie Odell, Executive Director
Northeast Seafood Coalition

Sector organizers went searching to find the previous owners and secure the necessary signatures. As some previous permit holders were deceased, the trustee of the estate had to be found. It was a time consuming process. Because sectors did not fit neatly into the ITQ model as they were considered voluntary and allocated catch on an annual basis, it made it much more difficult for NMFS to interpret the legal boundaries to observe. It took NMFS nearly a year to re-evaluate their guidance on how to interpret the confidentiality provisions of Magnuson. Ultimately they determined that, since groundfish is a limited access fishery, it falls under an exemption that allows permit holders access to the information used by NMFS if they are making a decision regarding the permit.

Eventually, sector organizers received dealer data and vessel trip report (VTR) data for permits on their sector rosters for the time period in which they were cleared to access it. However, this was raw data. It was each recipient's responsibility to link the dealer data with VTR information if they wanted to determine which stocks they had actually caught.

¹⁷ It is interesting to note that the Council has been reconsidering designing allocation caps for sectors.

This was an almost impossible task. The data had never been used at the scale of the individual fishermen. The databases were set up to assess the fish population and status of the stocks. At that scale, minor errors in attributing catch to individuals did not affect the ability to track the population as a whole. NMFS was less concerned about *who* caught the fish, but needed to know where, how much, and when. Now they were being asked to use the data to inform individual permit holders of their landings history and there were many errors to correct.

In the end, NMFS started giving out landings history to all permit holders in May 2009. They provided the PSC and live pounds for the two time periods under consideration under Amendment 16 (i.e. 1996-2006 and 2007-2007).^l On June 11, 2009, just 12 days before the Council was to meet and take a final vote on Amendment 16, permit holders received another letter providing updates to the original data “due to corrections of some sector allocation data problems.” The letter also included a table showing what the PSC would be for that permit under the various alternatives being considered in Amendment 16.^{li}

Addressing the Need for New Monitoring and Reporting Systems

Developing a comprehensive catch monitoring and reporting system is critical to the success of implementing any quota-based system. An ad-hoc Monitoring Working Group was created outside of the Council process by GMRI to work through many of the monitoring questions. The Monitoring Working Group worked consistently for over a year to determine the objectives and requirements for a monitoring and reporting system for sectors. At the start of the process, the group was made up only of sector organizers as the industry wanted to have the opportunity to work through a monitoring strategy before engaging NMFS. One of the motivating factors for industry to come to the table to discuss monitoring was a lack of trust in each other. It was an industry-driven process because the industry knew the stakes were high and they didn't trust each other to accurately record landings. NMFS appeared less engaged with the process to work through the details of how to track the allocation within a sector as they were only interested in knowing the *total catch* for each sector. Eventually, the Monitoring Working Group expanded to include staff from the NMFS Regional Office and from the NMFS Science Center as they began to see the value in collecting this additional level of detail from fishermen.

Monitoring Report Provides Council Much Needed Information

In January 2008, GMRI commissioned Archipelago Marine Research in British Columbia to assess monitoring and reporting needs for sector management in New England with support from the Alex C. Walker Foundation and the Gordon and Betty Moore Foundation. Howard McElderry and Bruce Turriss met with industry, Council, government, and other stakeholders to evaluate monitoring needs and produced two reports that were presented to sector organizers and the Council. The reports detailed monitoring needs, proposing methods to address them and estimating costs of implementation and operation of the system. This was the primary information the Council had to work with regarding monitoring and it was seen as one of the biggest contributions to the Council's monitoring decisions.

The Archipelago report concluded that the current monitoring and reporting system for the New England multispecies groundfish fishery was inadequate for the timely and accurate catch monitoring necessary under sector management. Furthermore, it recommended implementing an enhanced dockside monitoring program and data collection system in the initial year of sector operation followed by a phased introduction of an additional at-sea monitoring program using a combination of human observers and electronic monitoring.

The Archipelago report provided valuable information for the Council and the industry. From the Archipelago report, the Council and industry learned that the cost of adequate monitoring for sectors relative to the value of the fishery would be higher than expected, thus creating a serious barrier to implementation. There was justifiable concern that the industry was expected to fund the monitoring without subsidies. The sector proponents recognized the need to work together to secure federal funding. As a result, a unique coalition of industry groups put forward a request to Congress to fund a monitoring program for sectors.

Developing Plans for Dockside Monitoring and Reporting Systems

GMRI managed the Monitoring Working Group from 2007 through 2009 to work through the myriad of details to develop a dockside monitoring system. The monitoring program for sectors had to meet federal regulatory requirements and reflect the realities of fishing operations. Another purpose of a uniform approach to dockside monitoring was to minimize potential inefficiencies that might have been created by sectors that weren't proposing drastically different monitoring systems in their applications to NMFS.

Surprisingly, one of the most useful aspects of the Monitoring Working Group was facilitating a dialogue between different parts of NMFS so that they could reach consensus on monitoring needs and methods. Although the burden of creating a monitoring system rested with sector organizers, the sectors needed to develop a system that was acceptable to NMFS. It proved challenging to get the various parts of NMFS to agree on what a monitoring system should look like and what standards should apply to monitoring systems. The challenge of designing a system without any clear definitions for standards and requirements was profound. The Monitoring Working Group provided the institutional structure for the different sectors to work together and with government to develop an acceptable system.

The Monitoring Working Group discussions regarding dockside monitoring evolved over time. Although the original goal was to discourage misreporting and to make sure the sector manager had enough detailed real time data to manage the sector's quota, over time, the enforcement arm of NMFS became interested in using the dockside monitoring system as an enforcement tool. This complicated discussions among the Monitoring Working Group members as there were conflicting objectives of the program.

NMFS was originally disengaged in the monitoring discussions as they failed to grasp early on that the incentives for fishermen would completely change under sectors.^{lii} Ultimately, they realized that, to make the sector program work, NMFS enforcement would have to have a heavy influence over monitoring. This changed the landscape as it was no longer just

about accurately knowing landings and discards for stock assessments. Now the question was how much coverage do you need to deter violation? In other words, what level of coverage would get you to the point where the risk of penalty was not worth the gain of cheating?

One of the major issues that needed to be resolved was designing a hail system. There was an existing hail system, the vessel monitoring systems (VMS), that tracked when fishermen left the dock and were fishing and when they returned. There was also a system in place to track fishermen who fished areas such as the US-Canada Transboundary Area. But the dockside monitoring for sectors would require something much more rigorous so fishermen could report when, where, and how much fish they were landing.

In order to provide more information to the Monitoring Working Group, GMRI and EDF jointly-funded a project to test the feasibility of the dockside monitoring guidelines developed by the Monitoring Working Group. AIS, the region's primary at-sea observer firm, was contracted to run a pilot study with the members of two sectors. AIS found that the dockside monitoring system developed by the working group caused little disruption in fishing operations and could be done cost effectively, even in relatively remote ports.^{liii} Ultimately, NMFS adopted the Monitoring Working Group's guidelines with only a few modifications.

The other aspect of the monitoring program was enhancing the at-sea observer coverage for sector vessels. The Archipelago report had made it clear that the current system needed improvements to be effective under sector management. Industry also knew that there were clear advantages of having a more accurate discard rate. Under an output-based program, the lower the discard rate, the higher the allocation available for fishermen to land and sell. Environmental advocates were concerned that there would be incentives to discard and pushed for 100% at-sea observer coverage. But the estimated cost for at-sea observers ranged anywhere from \$750-\$1,400 per day and it was clear industry was not prepared financially to absorb that cost in the first year of the sector program.

Groundswell of Support, Confusion, or Fear?

March 1, 2008 marked an important milestone in the sector process and provided a clear indication of the momentum behind moving sectors forward for groundfish. The 19 sectors with current proposals had to submit a complete membership roster to NMFS in order to request information on individual members' catch histories. According to the National Marine Fisheries Service, 656 permits were signed into sectors at that time. Putting this number in perspective, in calendar year 2007, there were 1,309 limited access multispecies permit holders with roughly 780 of them landing groundfish and considered active. It was estimated that the permit holders listed on the sector rosters represented about 85% of the active fishing fleet in New England.

Was this a sign of overwhelming support of the sector idea? No. Most fishermen were extremely skeptical about the sector system and many signed up without a great deal of

information. Fishermen still had the opportunity to withdraw from a sector without penalty.

The prospect of living under DAS with a potential 50% cut and additional measures such as the 24-hour clock was not appealing to many groundfish fishermen. They predicted under this scenario that their businesses, and their livelihoods, would not survive. Sectors were the *only* other option at this point. As more rumors floated among the docks about the potential effort control measures being proposed by the Council, more fishermen started to consider sectors.

Fishermen were looking for a change. But it was unclear if sectors represented the type of change they were actually seeking. The idea of having a self-selecting group of fishermen with more autonomy and less bureaucratic oversight from NMFS sounded appealing to many fishermen. But the details of how sectors would function were still being defined by the Council under Amendment 16.^{liv}

Amendment 16 Timeline Revised – June 2008

At their June 2008 meeting, the Council developed a new timeline for development and implementation of Amendment 16 to “use new and revised biological reference points and the groundfish assessment review meeting (GARM III) stock status information as the basis for the amendment” and also to afford adequate time for public comment on resulting amendment alternatives and impact analysis.

Prior to the June meeting, the Council had adopted a suite of effort controls based on the working assumption that a specific set of stocks would be classified as ‘stocks of concern.’ The Regional Office had been pushing the PDT to work on effort controls prior to having a complete stock assessment. However, a preliminary review of the GARM III results, which included additional landings and survey data, revealed that effort control measures being considered in Amendment 16 were not targeting the correct stocks for mortality reductions.

The Council pushed to include the most recent trawl survey information in the final GARM III assessment before taking action on Amendment 16 and NMFS supported this decision. As a result, a Draft Environmental Impact Statement for public comment would not be ready until early 2009. Therefore, the timeline for implementing Amendment 16 and the sector program was delayed until May 1, 2010.

Amendment 13 required an automatic 18% reduction in DAS if stocks remained in poor condition. The Council’s decision not to implement Amendment 16 for May 1, 2009, required NMFS to issue interim rules for the start of the May 1, 2009 fishing season to implement these changes, which further restricted fishing and motivated the industry’s leaders to develop sectors as a viable alternative.

Organization of New England Groundfish Sectors

Although there was a delay in the development of Amendment 16, the sector organizers continued to work steadily to get all the systems in place to have sectors functioning. The establishment of sectors in New England would not have taken place without a handful of key industry leaders. It takes a unique individual to navigate the maze of council meetings, PDT meetings, and Groundfish Committee meetings and follow the fisheries management process. The fisheries management world is unfamiliar to most and often an intimidating forum for fishermen and others with an interest in playing an active role in shaping policy. Leadership came from a variety of fishermen and a broad range of fisheries organizations. Some of the industry sector organizers had funding support and strong partnerships with local and regional non-governmental organizations while others looked to their membership base for resources.

The majority of the groundfish sectors were organized by existing industry organizations that had been established to represent their members on policy issues. Although this provided a solid basis for establishing the sector policies, much additional time and expertise was needed to fully develop the sectors as independent entities. The sector members are jointly and severally liable for each others' violations of the fishery regulations, so this placed a much higher scrutiny on organizational details and the relationships between members. In the end, all of the sectors established themselves as individual organizations to establish some legal distance from the parent organization. The membership of both the parent organization and the affiliated sector (or sectors) is not always the same.

The majority of sectors were organized around the fishing communities in which their members landed their fish or the geographic areas that they fished. The exceptions to this were the Sustainable Harvest Sector and the Tri-State Sector as their memberships included vessels that land in a number of different ports in several states and in widely dispersed fishing activities.^{lv} The 19 proposed sectors also varied in terms of size of membership, predominant size of vessels, and type of gear used to fish.

Coalition Creates a “Network” of Sectors

The Northeast Seafood Coalition was responsible for organizing 12 of the proposed sectors throughout New England. There are nine NSC-organized sectors out of ports in Massachusetts, two NSC-organized sectors operating out of ports in southern Maine and New Hampshire, and one NSC-organized sector operating out of ports in Rhode Island.^{lvi} In the original proposal to NMFS in May 2008, the 12 sectors were established as placeholders with each representing a different community of fishermen and various gear types. This allowed for flexibility to organize each sector to accommodate different groups of fishermen who wanted to work together. With such a broad cross-section of interests and communities throughout Massachusetts, New Hampshire, and Rhode Island, the NSC reached out to fishermen with whom they had existing relationships to start forming each sector. Sector 5, in Rhode Island, was organized around an existing structure as they had

already piloted the sector idea through the state fluke sector. Other sectors had members that had worked together as a group and all had some existing relationships that helped them form into an organized sector.^{lvii} Originally, any fisherman could join an NSC-organized sector as NSC was trying to provide an option for anyone in the community. However, NSC required an initiation fee to ensure every member made a financial contribution toward the development of their respective northeast fishery sector.

“NSC did not organize the 12 sectors because it was a proponent of sectors; it did so because, in the period 2008-2010, the only viable option under regulatory development was the sector management system. ... NSC sought to create ‘lifeboats’ for its members so that they could continue to be part of the fishery that they love and to which they have contributed so much. Amendment 16 sectors are a stop-gap measure in the difficult march to a well-managed, robust, and rebuilt fishery.”

Northeast Seafood Coalition website (www.northeastseafoodcoalition.org)

Each of the NSC-organized sectors operate as independent corporations as 501(c)5 organizations in Massachusetts and as legal entities in other states as well, and as such have established a corporate board structure.^{lviii} The size of the sectors ranges from 10 to 75 permits for each of the sectors. As of September 2009, there were 468 permits in total for all the NSC-organized sectors. All of the NSC-organized sectors combined have been allocated anywhere from 44% to 89% of the total commercial annual catch limits of the respective stocks (the average, by stock, is 60%).^{lix}

Working with Sectors to Get through the Technical Details

The development of sectors placed a significant administrative burden on the sector organizers, all of whom were already committed to other efforts and had significant demands on their time. Each sector had to form new legal entities with legal contracts, had to draft operations plans and had to prepare environmental assessments. They also had to meet strict reporting and monitoring standards and develop communications and data collection and analysis systems. Most sectors were also established as corporations that had to comply with all state and federal corporate laws as well. The sector organizers had many details to work through before submitting their operations plans and environmental assessments to the NERO.

The Gulf of Maine Research Institute played an active role in getting the sector organizers to work together and develop templates for the sector organizers to use. Very early in the development of sectors, with seed funding from the Betterment Fund, GMRI hired a sector coordinator to provide technical assistance to the Midcoast Fishermen’s Association and the Sustainable Harvest Sector in May 2007. Later that year, GMRI hosted a workshop in collaboration with the Marine Law Institute at the University of Maine School of Law, the Maine Chapter of the Ocean Conservancy, and GMRI. Funded by a grant from the National Sea Grant Law Center, the meeting involved a select group of attorneys, fishermen, regulators, and academics to discuss the legal aspects of New England groundfish fishing

sectors. The meeting focused on analyzing, for the first time in depth, contract terms relating to compliance and enforcement, membership transferability, monitoring and reporting practices, and relationships to other areas of property and competition law, as well as the necessary regulatory regime supportive of cooperative agreements in fisheries. It was also meant to serve as a way to develop a qualified legal community to assist regional fishing cooperatives with contract creation and management and to create the context for partnerships between fishermen, fishery industry leaders, and the legal community.¹⁸ GMRI staff also took the lead in organizing an all-day meeting in September 2008 with NMFS staff and sector proponents to discuss the requirements needed for the environmental assessments and discuss ways to streamline the process. NMFS provided a complete environmental assessment template with text guidance that could be used by each sector to assist with the development of these documents.

With the deadline for implementing sectors pushed back, final operations plans and environmental assessments were due to NMFS by September 1, 2009. GMRI developed a detailed work plan and began drafting sections of the environmental assessment that were common to all sectors in an attempt to assist the sector organizers. Other non-profit organizations such as Environmental Defense Fund, Island Institute, and Rhode Island Sea Grant provided additional assistance to organizations as they were struggling to get all the pieces in place for a new management structure.

Management Approaches of Sectors

Despite the diversity of the sectors in terms of the characteristics of members and the way they operate, their proposed operations plans had a great deal of similarity in their approach to managing allocation.^{lx} Each of the sectors decided to allocate ACE as an individual quota to each member based on the PSCs of the permits they brought into the sector. Even the Georges Bank Fixed Gear Sector, who had previously used a competitively fished monthly TAC system, opted for an individual ACE allocation starting in 2010.^{lxi}

Within each sector, members would be allowed to trade ACE amongst themselves. The sector manager would require prior approval for trades, but NMFS would not be involved as this would be an internal sector transaction. NMFS was only concerned with the total sector catch, not the catch of individual members. However, a sector and their members would also be allowed to acquire ACE from other sectors and this action would require approval by NMFS and also be done through the sector managers.^{lxii}

One of the concerns voiced by industry members about sectors was the idea that the sector would be shut down if they exceeded their ACE allocation for the year. In order to guard against this, the sectors each incorporated some type of reserve system requiring members to put a percentage of their ACE, ranging from 5% to 20%, into a reserve that cannot be accessed until later in the year. If a vessel within the sector exceeds their individual ACE

¹⁸Details about the workshop, including examples of operating plans can be found at <http://mainelaw.maine.edu/mli/sectorWorkshop/index.html>

allocation, they can receive ACE from the reserve pool but they may face a penalty and/or have to reimburse those who supplied the ACE to the reserve.^{lxiii}

The NSC sectors took a slightly different approach to reducing the risk of exceeding their ACE allocation in their operations plans submitted to NMFS. NSC created a “deemed value” system modeled on that used in the New Zealand ITQ system. Individuals that catch fish in excess of their individual ACE allocation could draw from the reserve ACE pool at predetermined ACE prices called deemed values. At the end of the year, the revenue from deemed value payments would then be redistributed to sector members in proportion to the amount they originally contributed to the deemed value ACE pool. Several of the sectors’ operations plans also included provisions that allow the sector manager to slow down fishing by limiting how much ACE can be used over a given period or by imposing trip limits.^{lxiv}

In order to reduce the catch of the species for which ACE may be limited, some of the sectors designed voluntary methods to share information about fishing locations to avoid. The Sustainable Harvest Sector proposed a mandatory “bycatch hotspot” reporting system and also gave the sector manager the authority to impose trip limits or gear restrictions in certain areas as additional measures to avoid exceeding its ACE allocations.^{lxv}

Council Finalizes Amendment 16

The Council continued to work through the details of Amendment 16 to keep pace with the deadline to have a new policy in place for May 1. At the end of April 2008, the Council published its Public Hearing Document for Amendment 16. It outlined in 37 pages the major changes being considered in Amendment 16, including the various options for calculating PSC. Despite attempts to simplify the information and communicate directly with the industry through trade magazines such as *Commercial Fisheries News*, there was lack of significant input from industry given the magnitude of the changes being proposed.

Confusion Between New Magnuson Mandates and Sector Policy

The source of greatest confusion was the timing of Amendment 16 as it coincided with the implementation of the ACL and AM provisions in the Magnuson reauthorization. Most of the fishing community did not understand that at the same time as the Council was contemplating how to structure management for groundfish, they were also responding to a new mandate from Congress. They did not realize that ACLs and AMs would be implemented *regardless* of what management approach was taken — not *because* sector policy was being refined in Amendment 16. Indeed, even editorial boards of major newspapers in the region failed to understand the distinction.^{lxvi} Fishermen seemed to think sectors would let them fish as they used to and did not realize the ACLs would constrain catches (under either system).

Rank and File Fishermen Unengaged in Process

The working life of a fisherman is not conducive to the public policy process. Most fishermen fish to go out to sea, spend time on the water, and make money. The day-boat fishermen get up early in the morning, usually pre-dawn, in order to get out and get the most out of their day. The offshore fleet spends multiple days working 24/7 to keep the boat on course and maximize fishing opportunity. One can see why the idea of spending a day ashore at a Council meeting or going to an evening public hearing or other discussion is not alluring. In addition, the fisheries management world is complex with PDT meetings, Committee meetings and Council meetings all contributing to the decisions that impact a fishermen's livelihood.

"I think the industry has gotten completely, voluntarily, disengaged from the process. They either feel its just way too overwhelming or they don't have time for it because they are dealing with their own lives and their own business."

Jackie Odell, Executive Director
Northeast Seafood Coalition

The vast majority of fishermen were not involved in the Council process to develop Amendment 16. There were only a handful of fishermen that attended the Groundfish

Committee meetings where critical issues were being debated. The fishermen did not engage in the process as much as they had in prior years. Perhaps they were just too exhausted by how hard Amendment 13 was to follow and too frustrated by the process. Many folks didn't attend meetings because they felt the decisions were not affecting them and only came to the table after it was clear which direction the Council was going.^{lxvii}

Amendment 16 grappled with complex issues and proposed significant potential changes for fishermen. Tom Nies, the New England Fishery Management Council staff member responsible for drafting Amendment 16, participated in a rapid series of six meetings held from Rockland, Maine to Narragansett, Rhode Island organized by GMRI. These informal discussions were an attempt to demystify the Amendment 16 process and provide factual information regarding the content of the document. Unfortunately, attendance was light in many areas and few fishermen took advantage of the opportunity.

Many fishermen have turned to industry representatives such as Associated Fisheries of Maine or the Northeast Seafood Coalition to follow the management process in detail and represent their interests. The average fisherman does not pay close attention to the Council process and attempts to get them involved in the Amendment 16 process were mixed.^{lxviii} Efforts by groups such as GMRI, UNH Sea Grant, and RI Sea Grant who held meetings with industry were only partially effective at informing a broad cross-section of the industry of the Council deliberations. Industry may have relied too much on their representatives for communication and translation of what was happening during development of sectors.

Industry on Allocation Formula

The majority of formal public comments to the Amendment 16 Public Hearing Document were focused on the allocation scheme and the majority of those comments supported the landings history-only option. Given the alternatives in front of them they thought it was the best of the options. But was there enough information to make a decision on the options? When the Amendment 16 Public Hearing Document was open for comment, fishermen were being asked to comment on alternatives without having the final numbers to make an informed comparison. Fishermen had their *potential* sector contributions (PSC) in terms of a percentage of the total sector allocation, but no one knew the *actual* pounds of fish that would go to a sector until the ACL was established, and the calculation of the ACL had been delayed. The Council's decision to incorporate the most recent NMFS trawl survey information to set the ACL meant that the implications of the PSC percentages in pounds of fish wouldn't happen until *after* the final vote on Amendment 16. This had a profound impact on anyone's ability to truly evaluate the options proposed in the amendment. The Council staff made an attempt to show some examples of how the PSC would be calculated under various scenarios, but this was abstract and provided more questions than answers.

“The draft amendment had some preliminary numbers - some high and some low. They were ballpark. Samples on how they would translate [to pounds of fish] were put out, but it didn’t really hit home until people saw their own numbers. Having had the numbers [for each permit] earlier or delayed implementation may have helped people get their heads around the numbers. The numbers still would have been low, but people would have been more aware of what they were getting.”

Tom Nies, Fishery Analyst
New England Fishery Management Council

Implement or Delay?

As the Council was developing Amendment 16, NMFS was scrambling to figure out how to implement the plan (*that had not yet been voted on*). Typically, the process is sequential with the Council developing a plan and the Service taking responsibility for implementing the plan. With Amendment 16, there were so many details to work through with the sector program that there needed to be active discussions about mechanisms for implementing the plan well before all the pieces were fully development by the Council. This caused a great deal of confusion about what was provided for in Amendment 16 and what other pieces were being put in place by NMFS through regulations.

NMFS tried to be proactive by sending several mailings, providing Q&A sheets and writing articles for *Commercial Fisheries News*. These things typically happen after rule making is published. But due to the tight timeline between the Council’s final vote on Amendment 16 and the May 1 implementation date, NMFS made an attempt to inform people, particularly sector organizers, that if the Council made certain decisions, NMFS would require information such as final sector rosters by a certain date.

One of the major forces behind the development of Amendment 16 was the desire to offer sectors as a viable option by May 1, 2010 and allow fishermen to opt out of DAS management. In retrospect, the idea of taking a one-year pause after passing Amendment 16 but before implementation day may have been one to consider. The desire to take advantage of the momentum behind sectors due to concern that change would never happen if sectors didn’t keep moving prevented the idea from surfacing. Many fisheries organizations had been working hard to implement sectors on May 1 in order to avoid going into the common pool. They would have been penalized by a pause in the implementation and pushed back very hard politically. There was no room to maneuver. NMFS was not going to move submission of Amendment 16 back another year and the Council wanted the most up-to-date information.

Council Approves Amendment 16 – June 2009

Despite the great deal of uncertainty, the New England Fisheries Management Council voted 14 in favor, 1 opposed, and 1 abstention to submit the final Amendment 16

provisions to NMFS at their June 2009 meeting in Portland, Maine. Amendment 16 established a new PSC allocation scheme for sectors that was based on using landing history only from 1996-2006.¹⁹ Although the specific motion to approve the allocation formula passed, it was not unanimous. The state representatives from Rhode Island, Massachusetts, and Connecticut, as well as an industry representative from New Hampshire, did not endorse the allocation formula.

Amendment 16 adopted 17 new groundfish sectors and implemented changes to the existing Cape Cod sectors. There were significant changes made to the policies that govern sectors. Most notably, sectors were allocated hard quotas of all regulated groundfish stocks (except halibut and a few species for which there are zero retention limits). In return for accepting a fixed annual allocation of fish, sectors were exempt from DAS limits and some seasonal closures originally designed to reduce mortality.

Amendment 16 also established dockside and at-sea monitoring requirements. Based on the recommendations from the Archipelago reports, implementation of dockside monitoring was scheduled to begin in 2010 and 2011 and the phasing in of at-sea monitoring was scheduled to start in 2012. Dockside monitoring was set at 50% of the trips for fishing year 2010 and then 20% of the trips for future years. The level of at-sea monitoring was not specified in the plan except that less than 100% was proposed with NMFS developing the final details.^{lxix}

Although the administrative process for setting the ACLs was adopted in Amendment 16, the actual limit (in pounds of fish) was not established until the Science and Statistical Committee (SSC) reviewed the final outcome of GARM III and made recommendations to the Council much later in the year under Framework 44.

¹⁹ Note that the existing Cape Cod Sectors were granted a separate allocation formula for Georges Bank cod based on the formula established in Amendment 13. The Georges Bank cod PSC was based on landings history for fishing years 1996-2001. This was a source of much controversy as it provided for two different allocation formulas but also sent the message that the Council was reluctant to change past allocation decisions.

Implementation Growing Pains

The adoption of Amendment 16 was a landmark event for New England groundfish fishermen and for the fishermen throughout the region. It signaled endorsement by the Council to move forward with implementing catch shares and set in motion a dramatic overhaul of the fishery. Amendment 16 opened the door for fishermen to increase the flexibility of when and where they fish in exchange for joining a sector and accepting a hard TAC.

Political Changes Bolster Sector Implementation

Just three months prior to the Council vote on Amendment 16, Dr. Jane Lubchenco took office as Administrator for the National Oceanic and Atmospheric Administration, which oversees NMFS. This resulted in a major shift in national attention to New England's implementation of groundfish sectors. A former board member of EDF and proponent of catch shares as a management tool, Dr. Lubchenco made it clear that she would support the transformation to sectors in the groundfish fishery and that she was watching carefully. At that April Council meeting, she announced that the National Oceanic and Atmospheric Administration would commit \$16 million of its current fiscal year 2009 budget "to assist the Northeast fishing industry with the transition to management of the fishery by sectors and catch shares."^{lxx} She also told the Council that "The ball is now in your court and we will be watching closely."^{lxxi} The Obama administration wanted to establish catch shares, through sectors, in New England and make a rapid transition in groundfish.

Although the last minute announcement of federal resources and the pressure from Dr. Lubchenco came too late to influence the Council's decision on Amendment 16, the federal resources did have an enormous impact on how the NMFS staff in the region embraced sectors. Although NMFS had been collaborating with the industry on the development of sectors, after the announcement of funding in April and the Council's approval of Amendment 16 in June, NMFS staff became fully engaged in partnering with sector organizers and the rush to have new systems in place for the 2010 fishing season. Implementing sectors became a top priority for NMFS. The NMFS Regional Office put a senior person within the Regional Administrator's office to coordinate the various parts of the agency that needed to be in sync to establish the systems for sectors (i.e. enforcement, science, and regulatory). Additional staff were hired, including three policy analysts, to work with sectors.

A major focus of the new commitment by NERO to sectors was working through the details of sector monitoring and reporting. These requirements were key elements of the sector's operation plans. NERO held the first of a series of workshops in June with sector organizers and staff from various parts of NMFS who needed to define the requirements and create an efficient way for sectors to comply with these requirements.

New outreach efforts were also developed to communicate with sector organizers and sector members. A new monthly publication was created to communicate with the industry

and a new website was established.^{lxxii} Prior to the May 1, 2010 start of sectors, NERO also held a series of industry meetings to explain the 2010 groundfish fishing requirements.

To Join or Not to Join

Roughly 85% of active groundfish fishermen had indicated their initial interest in joining a sector by placing their name on a roster by March 1, 2008. However, the final rosters were not due to NMFS until September 1, 2009 when the sectors' operations plans were due. Much had changed since March 2008 and there were many fishermen who remained skeptical of sectors and others who were confused by what in fact they were joining. Nobody really knew what a sector was and how it would actually function when the fishing season started.

During the initial development of sectors, most sector organizers had an open-door policy and were willing to allow anyone to sign up on the sector's roster. Other sectors required some form of approval of new members or asked new sector members to join as members and pay a membership fee. The Sustainable Harvest Sector took out an advertisement in *Commercial Fisheries News* and actively recruited fishermen.

Joining a sector was not a straightforward decision and came with an incredible amount of risk and uncertainty. The sector members are joint and severally liable to each other and collectively are required to stay within their annual allocation of fish. If one rogue member of a sector decides to fish beyond the sector's allocation limits, all members of a sector are held accountable. Fishermen were being asked to make a fundamental change in how they approached fishing and their fishing business. They could no longer rely solely on their ingenuity, skill, and drive to fish for success. By joining a sector, they were putting their trust in the other members of the sector and they had to pay attention to the complicated new management structure in place. Joining a sector meant making a critical business decision without readily available answers to some basic questions: How much fish am I going to get? How much is this going to cost? How is this going to work? How is this going to change my business?

The foundation of the new sector management structure was based on landings history and a fishermen's contribution to the sector's total annual allocation. Fishermen wanted to know what they had for eligible landings history and they wanted to be certain those numbers were accurate. Initial allocations were released to groundfish permit holders in May 2009 for nine regulated groundfish species, comprising 15 stocks, proposed for allocation to sectors, the month before the Council's final vote on Amendment 16. The landings data for the fishing year 2010 allocation process were based on dealer data, vessel trip report data (VTR), and ownership data contained in NMFS database. Two sets of data were provided to permit holders to cover the two allocation periods being considered under Amendment 16. NMFS allowed permit holders to request a review and correction of vessel trip report (VTR) or dealer purchase report data but those requests were due by October 2009 and would not be implemented until the 2011 fishing year. In June, NMFS provided updated information to groundfish permit holders due to "corrections of some

sector allocation data problems.” While this information had a limited effect for most permit holders, it represented a significant change for some.

As of a September 1, 2009 deadline, 723 boats, representing over 90 percent of the possible harvest and 82 percent of the days-at-sea permits in the groundfish fishery, had signed up to fish under sectors in 2010.^{lxxiii} Although this number is impressive, it is difficult to make the argument that this was a massive show of support for a transition to sectors. Instead, many fishermen were still hedging their bets, as there was no penalty for dropping out of the sector and joining the non-sector vessels (referred to as the “common pool”) prior to the May 1 start of the fishery.

By June 2009, the Council had adopted the basic rules for the common pool. Amendment 16 reduced Category A DAS by 50% (from the Framework 42 allocations), and counted all DAS on a 24-hour clock (i.e. 6 hours is counted as one DAS, 25 hours is counted as two DAS, etc.). At the Council’s September 23, 2009 meeting, the Council voted to develop additional common pool management measures for the 2010 fishing year. These measures included not only further trips limits and differential DAS restrictions for GOM cod, but also contained restrictions for pollock.²⁰ In addition to these new restrictions, the Council made the decision to allow the NMFS Regional Administrator to change the common pool rules mid-year if necessary. This created an unacceptable level of uncertainty for many fishermen in the fleet.

“In development we didn’t even know what our allocation was going to be until after we joined a sector. That’s how strange this whole development thing has been. The original deadline to join the sector was September 1st, 2009 and we didn’t know what our allocation was. We had to say ok we’ll commit to joining a sector next year but we have no clue what were going to get for fish!”

Frank Mirarchi, Fisherman
Scituate, Massachusetts

Given the new information on the common pool measures, NERO permitted sectors to re-open their rosters to allow new members to join. A new deadline of November 20, 2009 was set for sector roster submissions. The decisions to re-open was not required and remained at the discretion of the sectors.

But the schedule to submit a final sector roster was shifted one more time. It was not until December 2009 after Framework 44 was adopted that the groundfish ACLs for fishing year 2010-2012 were finally established. These ACLs were used to determine the ACE for each groundfish sector for fishing year 2010. On December 23, 2009, NMFS provided permit holders with preliminary pounds of each species of groundfish the permit would contribute to the ACE of a sector. This was the first time fishermen actually saw how many pounds

²⁰ Ironically, these management measures for pollock were based on an assessment that changed dramatically in July 2010 when a more recent stock assessment (SAW 50) was completed for pollock indicating that overfishing is not occurring, the stock is not overfished, and the stock is rebuilt. (see 75 FR 41997; July 20, 2010)

they brought to a sector. Vessels fishing in the common pool during the 2010 fishing year were provided with their preliminary DAS allocation and many realized just how few days they would be allocated if they remained in the common pool.

Once again, NERO acknowledged that permit holders had new information that may impact their decision to join a sector. Sectors were allowed to accept new members and current sector members were allowed to change sectors up until January 22, 2010 when the final rosters for the 2010 fishing year were due to NERO. Sector members could elect to remove themselves from a sector roster at any time prior to April 30, 2010 and would become part of the common pool.

Even with the preliminary PSC information and ACE contribution in pounds, fishermen still lacked critical economic information on which to base a business decision. Sectors are responsible for implementing and funding the monitoring and reporting systems for the sector to track its ACE. The monitoring and reporting costs for the sectors were unknown and this posed a significant financial risk. There were rumors about potential monitoring costs, but the conversations regarding NMFS monitoring standards and requirements for sectors were still ongoing. Sectors needed to hire a third party monitoring company and there were many unknown factors that would affect the cost per fishing trip. Some fishermen had heard about the monitoring estimates presented to the Council from the Archipelago reports and other groundfish fishermen knew the scallop limited access fishermen paid approximately \$750 per day for monitoring services on their trips. All of these numbers were higher than a fisherman's monitoring costs if they chose to remain in the common pool. Common pool fishermen were not asked to contribute to the monitoring and reporting costs.

The groundfish fishermen were faced with an untenable choice. They could join a group of fishermen (some of whom they may know but many of whom they have never met) with whom they would be jointly liable, contribute their potential 2010 catch as a member of this group, and face unknown monitoring and management costs. Or, they could remain under the current DAS system and see their fishing days cut drastically with severe limits on their daily catch. In the end, many fishermen turned to fishing friends, neighbors, and others in the community for advice. No one had all the answers of how sectors would work out and many fishermen, including whole sectors, were grappling with their decision until the very last minute.

In the end, the majority of groundfish fishermen opted to accept the uncertainty and take the risk of joining a sector. When the groundfish fishing season started on May 1, 2010, there were 762 fishing permits assigned to sectors, which represented over 98% of the historical groundfish fishery.^{lxxiv} Despite the unknowns ahead, the groundfish fishing industry was moving forward with a profound transition that marked a change in the course of the fishery's future.

Adapting Current Data Systems and Creating New Ones

The initial Cape Cod sectors were allocated less than 10% of the Georges Bank cod TAC. The transition to sectors for all groundfish stocks was a substantial and fundamental change for NERO to implement by May 1, 2010.

There are several different databases that NMFS uses to assess fish populations and track fishermen. Each of these databases was designed for a specific purpose and none of them was designed to track allocation to a sector or to individuals. NMFS statisticians, enforcement officers, and managers were now being asked to use their databases to serve a dual purpose – continue to track the common pool under the DAS system and track sector allocation under a TAC. This was not a simple task.

NMFS' initial hesitation to devote resources to developing sectors early in the process delayed the start of any meaningful conversation about what new systems and procedures were required for sectors. To complicate matters, the NMFS Regional Office, the NMFS Science Center and the enforcement arm of NMFS each had separate databases and there was a large disconnect and lack of communication among these branches of the same agency. The Regional Office invested heavily in a vessel trip report (VTR) database, a dealer database, and a permit holder database. The Science Center has their observer program with its database as well as information from the NMFS trawl survey. Additionally, NMFS Enforcement maintains a vessel monitoring system (VMS) to track the location of fishing operations and the vessel's activity.

Once the idea of converting nearly the entire groundfish fishery to sector management was closer to reality, NMFS stepped up their efforts to resolve the database issues. The NMFS Regional Office hosted a series of meetings over the summer of 2009 to bring together the various branches of NMFS with the sector organizers, fishermen, and other interested parties. Facilitated by The Touchstone Consulting Group (hired by NMFS), the monitoring and reporting workshops worked toward a shared understanding of reporting requirements for sectors and provided information to assist sector managers as they completed their sector operations plans.^{lxxv}

The conversion of the New England groundfish fishery to an output-based management system with limits on total catch for each sector placed new incentives on the fishing industry to accurately track their catch. Fishermen wanted to know how much fish they landed in order to know how many fish they had left of their allocation. Each sector hired (or in some cases, jointly hired) a sector manager to administer the monitoring needs for the sector and report to NMFS. These people were pivotal in the implementation of sectors.

In order to assist the sector managers, NMFS created the sector information management module (SIMM). This web-based system allows sector managers to view the various databases from NMFS by pulling the information together into one web portal. SIMM provides sector managers with data and also lets sector managers submit weekly reports electronically. However, the data NMFS provides is often weeks old once it has been

entered, audited, and edited. For sector managers to track a sector's ACE in a timelier manner, they needed to rely on what is received directly from the vessel's paper VTR, the dealer reports and the dockside monitoring company. This required developing a new sector-based data management tool.

The data management requirements under the original Cape Cod sectors were much simpler. Reports to NMFS were due on a *monthly* basis for one fish stock. A sophisticated spreadsheet was all that was needed to manage the sector's allocation. Under the new groundfish management program, sector managers needed to track 16 stocks on a *weekly* basis. The CCCHFA realized the complexity of the database system for sectors and began designing and building a database to better suit the pending shift well before Amendment 16 had been approved. The CCCHFA reached out to the other sectors to assist with building a new sector management tool. The Sustainable Harvest Sector, the Port Clyde Sector, the Tri-state sector and the Northeast Coastal Communities Sector joined CCCHFA to work through a database solution for sectors. The Northeast Seafood Coalition sectors had begun work early on with a consultant to design their own system called "FishTrax" to manage the sectors' data.

Other web-based information has been made available by NERO to assist with the transition to sectors. NMFS has created a website for sector managers to check which vessels in their sector had hailed out to go fishing or hailed back in to the dock. The sector managers can also check on-line to see which vessels have at-sea observers aboard and which vessels have a dockside monitor for their trip. There is other general information readily accessible including all the sector rules and regulations written in a very clear and concise format.

Although a great deal of effort was made to address the monitoring and reporting needs of sectors prior to their implementation on May 1, 2010, many of the systems were not fully in place when the new management regime was launched. The rush to design new systems before the start of the fishing season meant that significant decisions were made without input from sector organizers and industry. There was also little time to beta-test new web portals and sector management tools so the sector organizers and NMFS were faced with a host of problems when fishermen hit the water.

Addressing Dockside Monitoring Challenges

The dockside monitoring standards and procedures for sectors received a great deal of time and attention early on in the process of developing sectors. The standards for dockside monitoring, and the initial impetus for implementing the program, came largely from industry through the Monitoring Working Group. Under Amendment 16, sectors are required to contract with an authorized third party provider to implement a dockside monitoring program with 50% coverage in the first year and at least 20% in future years.

Unfortunately, the implementation of the dockside monitoring program has been a source of disappointment and frustration for the industry. Although general standards for dockside monitoring were developed by the industry in consultation with NMFS, the final

standards adopted by NMFS had additional details and other changes that were made without including the industry in follow-up discussions.

The industry's original goal for the dockside monitoring program was to verify what was landed and ensure that the dealer reports were accurate. "I trust my guys but I don't trust anybody else's guys. That's why we need 100% of our docks monitored." Although the fishermen are required to file a vessel trip report (VTR) and the dealers are required to file a weekly report to NMFS, these reports were not going to be readily available to sector managers and fishermen asked for a third party to verify the offloads. The electronic dealer reports were originally not going to be made available to sector managers so dockside monitors would serve as proxy for the sector managers to track allocation before NMFS received the data and performed their quality control. There were also specific hail in and hail out requirements so sector managers would know which vessels were fishing. The NMFS Regional Office viewed the dockside monitoring primarily as a tool for sector managers. The enforcement arm of NMFS viewed dockside monitoring as an incentive not to cheat the system and an opportunity to meet incoming vessels to verify their catch.

The dockside monitoring system implemented for sectors requires that only 50% of trips be randomly selected for monitoring. When a dockside monitor witnesses the offload from a trip the data from the dealer weigh out is recorded and provided to the sector manager within 24 hours. If a dockside monitor isn't present at offload, the vessel is required to provide the sector manager with a copy of the VTR and the dealer slip within 24 hours. The data from the dockside monitoring program is not provided to NMFS as they rely on weekly VTR reports which are submitted in paper form (requiring time to enter into the database) and reports directly from the dealer.

Contrary to what was originally discussed during the development of the program, the dockside monitors are not serving as a third party weighmaster for 100% of the offloads, but are instead witnessing the offload of 50% of the trips and using the dealer reports. Dockside monitors are also not checking the hold of the vessel to make sure all the fish are being landed.

"There was so much industry involvement. So much voluntary industry involvement up through a certain point, and then between that point and 'go time' so much changed and then there was so little industry involvement. It's frustrating."

Eric Brazer, Sector Manager
Cape Cod Commercial Hook Fishermen's Association

There have also been incredible logistical issues to overcome with the dockside monitoring program. Almost independent of the dockside monitoring system, and of greater importance to some, is the new hail system. Prior to the implementation of sectors, NMFS knew when vessels were fishing based on their VMS. There were also specific requirements to notify NMFS when fishing in particular areas such as the US-Canada Transboundary area. But the new hail system under sectors requires fishermen to provide advance notice

to the dockside monitoring company regarding the time and location of departure for a trip. A vessel may not leave to go fishing until they have received confirmation that the dockside monitoring company has been notified of the trip. Vessels must also provide the intended time and location of landing and offloading and an estimate of the volume of fish to be landed for planning purposes.

Implementing the hail requirements has been a source of great frustration and anger among the fishing industry. The regulations presuppose a reliable communication platform and infrastructure. NMFS allowed sectors to choose their hail mechanism, but sectors elected to ask NMFS to modify the existing VMS to support hails. Many groundfish fishermen, particularly the smaller day boat fishermen, do not have Internet access on their vessel and do not use a satellite phone. Others have outdated technology. Even those that do have the technology have run into issues with the delays in satellite coverage, lack of high-speed Internet or network issues. The speed with which information can flow from the vessel to the dockside monitor and back is not sufficient for the dockside monitoring system to work effectively. This has caused fishermen to spend hours waiting for confirmation or trying to fix the problems.

NMFS expected people to have more access to technology and assumed a level of familiarity with computers. The system was designed in a way that relies on technology and that put many fishermen at a severe disadvantage. Fishermen have been struggling to meet these new expectations both financially and with new training. New communication systems cost approximately \$800 to \$1200 (or more) in hardware and software to comply with the monitoring and reporting requirements of sectors. In addition, each component requires on-going fees to maintain the services.

Creating New Organizational Structures

Although most of the sectors being implemented for groundfish in 2010 were sponsored through an existing association, the majority of sectors themselves were only loosely organized. Most notably, the Northeast Seafood Coalition had submitted operations plans for 12 new sectors under their umbrella organization to provide fishermen with several different sectors as options. Once the Council had adopted Amendment 16, the real work to get fishermen organized and engaged began.

The majority of the fishermen on a sector roster joined with little information and limited knowledge of how the new management system would work. Each sector has been an experiment in rapid organizational development within a culture of independent-minded individuals. While the idea of gaining some independence from NMFS was welcomed, taking responsibility for management of a sector's ACE has been challenging.

Each sector has hired a sector manager to work on the administrative details but these professionals were hard to find. Many sector managers weren't brought into the implementation process until nearly the start of the fishing season, with some sector managers hired only days before the May 1 implementation date.

Fishermen within each sector have been learning, many for the first time, how to work together and make decisions as a group. The operations plans provided a structure for the sectors, but the board of each sector did not write the operations plans and they have been coming to terms with what is in the document and what is expected of the sector. There have been plenty of details to work through and decisions for the sectors to make as a group. Not all fishermen have been ready and willing to take ownership of their sector and function as an independent organization. Sectors have relied heavily on the sector manager and a few industry leaders who have experience with group processes such as town councils or other groups.

“The hard part is getting meetings together because everybody is off doing different things. ... A lot of the energy of the sector is being distracted by all of these requirements of reporting, frequency, compiling different reports from different resources but they’re all the same information and none of it works. It’s so irritating.”

Frank Mirarchi, Fisherman
Scituate, Massachusetts

Sectors are expensive. The implementation costs of each sector varies due to a number of factors, but the start-up costs have been significant and would not have been possible for industry to bear alone. It is estimated that it can cost anywhere from \$100,000 to \$150,000 per sector to get them organized and running. There are costs for legal fees, writing the required environmental assessment (EA), investing in a database to manage the sector’s data, and hiring staff to manage the sector. The cost of writing the required EA alone can range anywhere from \$30,000 to \$100,000, depending on the complexity.

These various costs have been absorbed through a range of direct funding from NMFS and in-kind services. Early on, the foundation community contributed financial support to non-profits such as GMRI and EDF to provide technical support to sectors and assist with writing portions of the EAs. CCCHFA also secured grants to pay for the initial costs of their staff and the sector manager database, but additional industry funding was necessary to complete the database.

The federal government has contributed directly to the implementation of sectors and to fishermen. In fiscal year 2009, NMFS spent a total of \$6.3M on sector implementation, including \$739K to assist sectors with start-up costs and \$491K to pay for National Environmental Policy Act (NEPA) document development. NMFS is also paying for the sectors’ dockside monitoring and at-sea monitoring costs. An additional \$12.3M was allocated to NMFS for sector-related cooperative research, electronic monitoring, data management, and program development.^{lxxvi} Massachusetts also provided \$500,000 toward the development of sectors. The sector proposals submitted by the CCCHFA, the NSC and the state of MA DMF all received monies with specific deliverables.^{lxxvii}

GMRI’s work with sectors placed the organization squarely at the center of NMFS’ efforts to assist the groundfish industry in the transition to sector management. NMFS recognized

GMRI's central role in developing sectors by awarding it a pass-through grant to support sectors. The federal funds covered the sectors' dockside monitoring expenses for fishing year 2010 (\$1.2 million), start-up assistance to sectors (\$320,000), and a project to assess the effectiveness of dockside monitoring at the end of the fishing year (\$160,000).

Fishermen themselves have also been contributing their own financial resources to get each sector functioning. While some sectors did not charge fishermen to join, other sectors required an upfront cash contribution ranging from \$500 per person to \$2,500 per person to cover the sector's costs. These were just the initial fees with some charging additional fees of \$200 per month for the remainder of the year or, in the case of the NSC, the total cash commitment asked for each member who planned to actively fish the sector's harvest allocation was \$10,000 to be paid on individually negotiated terms. However, there was no contribution required for permit holders who chose to enroll in a NSC sector to lease their permit allocations to other vessels within the sector and not actively harvest the fish themselves.^{lxxviii}

Each sector also adopted a somewhat different strategy for paying implementation costs throughout the year. While most opted to apply a percentage fee per pound of fish landed, ranging generally from \$0.02 to \$0.08 per pound, others chose to base the sector contribution on gross proceeds instead of weight to better reflect the value of landings instead of the weight of the fish.

Lessons Learned from New England’s Experience Developing Sectors

The New England groundfish fishing industry has embarked on a dramatic transition in the way it is managed. The move toward catch shares did not come easily and the development and implementation of the sector program in New England has provided an opportunity to examine some of the key ingredients to consider when developing these programs for other fisheries in New England or in other regions of the country.

Communication and Transparency

The magnitude of the changes and the potential impact on the fishing community cannot be overstated when developing and implementing a new management structure. The most important ingredients to facilitate the change are *communication and transparency* - at all stages and at all levels. During the development of the program, the Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) should communicate clearly and often to all stakeholders regarding what options are being considered and why they are being considered. Conversations should happen with input from many different kinds of people and not just the extremely vocal or just the leadership from the industry. Although it may be difficult and time consuming, it is important to find ways to communicate with the average fisherman about what is happening and to encourage feedback.

“Promoting industry involvement as early as possible, be as transparent to the direction you want to go, the industry will respond to that rather than trying to push something.”

Rip Cunningham, Chair, Groundfish Committee
New England Fishery Management Council

Communication between the Council and NMFS and within NMFS itself is also invaluable. In the case of New England groundfish, the timeline for implementation was extremely aggressive and the Council was still making policy decisions while NMFS was actively gearing up for implementation. Timely and frequent communication was a critical component to staying on track for implementation. Even more critical, however, is the acute need for information to flow fluidly *within* the Service. The scientific and technical staff were not fully engaged with federal regulators designing the program in New England until very late in the process and that impacted progress and often lead to unnecessary frustration with the NMFS.

“There are always things that are going to come up, no matter how much you think about it, that you hadn’t considered before. Issues are raised; we are still dealing with issues almost every week.”

Susan Murphy, Supervisory Fishery Policy Analyst, Sustainable Fisheries Division
Northeast Regional Office, National Marine Fisheries Service

Leading up to the start of the fishing season and afterward, the industry needs constant, transparent, and honest communication with NMFS. During this tenuous phase, the fishing industry wants to know that NMFS is onboard and available to address concerns quickly. Information takes too long to communicate via the traditional method of permit holder letters and needs to come directly from the docks, person to person. NMFS port agents may provide a means to communicate more personally with fishermen.

Finally, communicating with the community at large and the general public about the transition that is happening should be included in the planning. It is important not to let less informed people outside of the process take over the narrative and tell the story. The transition of a management system by nature represents change; and change is often difficult and painful to manage. All the participants invested in a successful transition (i.e. Council, NMFS, industry, and others) can play a proactive role in communicating with the media to provide accurate and compelling information.

It Takes A Community

There is no one organization that can take credit (or blame) for the transition of New England’s groundfish fishery to catch shares. The sector program that is now in place took the foresight, commitment, and dedication of key individuals in leadership positions and the work of many staff within several organizations. The Cape Cod Commercial Hook Fishermen’s Association deserves credit for taking the initial steps for developing the first pilot sectors off of Cape Cod, but these sectors were for a single stock being fished in a limited geographical area. There was a great deal of work yet to be done in the creation of the 17 sectors now actively fishing for multiple species under a hard TAC.

Other industry leaders such as Associated Fisheries of Maine, Northeast Seafood Coalition, The Rhode Island Commercial Fisherman’s Association, and the Midcoast Fishermen’s Association took active roles in shaping how sectors were designed for groundfish. Although they came from various perspectives and with a great deal of skepticism and trepidation about the sector approach to catch shares, the fishing organizations ultimately cooperated to push forward the only viable option they believed was available to them.

The Council leadership and staff clearly had critical roles in developing key elements of the system through the Groundfish Committee and vetting the technical implications with the Council’s Plan Development Team. In New England, NMFS was initially reluctant to administer such a massive shift in management structure due to the additional burden on resources. Staff at the regional level became much more engaged when it was clear that the majority of the fishing industry was considering a move toward sectors and additional

national funding was secured to assist with the necessary modifications to the monitoring and reporting infrastructure.

Due to efforts of the non-governmental organizations (NGO) in the region, the New England fishing community had been discussing new ideas for fisheries management systems for several years before the current national trend toward catch shares. Though there was no universal approach emerging, there were a series of active conversations and opportunities to exchange information. The Gulf of Maine Research Institute initially examined sectors as a way to maintain fishing communities and actively secured funding to provide significant technical assistance to the fishing industry at a critical time during early development. With support from the Gordon and Betty Moore Foundation, GMRI engaged the fishing community, NMFS, and the Council in a proactive dialogue about monitoring and reporting to reach consensus on standards and discuss the complex details of implementation. GMRI is currently playing a key role in the implementation phases as a partner with NMFS and the sector organizers.

Other NGOs such as the Island Institute and the Penobscot East Resource Center provided support to industry leaders and important input into the development process. The University of Rhode Island's Sea Grant program also played a key outreach and facilitation role as the Rhode Island fishermen developed their in-shore fluke sector—an early pilot for the eventual groundfish sector that was established. The Environmental Defense Fund at the national level and the regional level lobbied for implementation of catch shares policy and supported the transition by orchestrating information exchanges with other regions of the country and contributing funding to local sector initiatives and monitoring work.

Considerations for the Council

Measurable Goals

Despite multiple attempts to create a vision for New England's groundfish fishing fleet over the past two decades, the New England Council lacked a clear and transparent set of goals and a vision for how they would like to see the fishery evolve. There were goal statements for Amendment 16 and the Council articulated a separate set of goals for establishing sectors in the groundfish fishery, but these statements did not establish measurable outcomes for the transition.

The Magnuson-Stevens Fishery Management Act clearly states legal standards for fishery management plans and the biological goals are well established in law. However, the socioeconomic goals are more nebulous and need further conversation. A great deal of time and energy is devoted to the stock assessment process in order to determine the annual catch limits based on the "best available science." The same amount of time and energy should be devoted to evaluating the fishing community demographics, vessel characteristics, crew stability, and economic drivers of the industry. Socioeconomic goals should be considered by the community and ultimately clearly articulated by the Council.

Fishery Management Councils considering a transition to sectors or other forms of catch shares may benefit from a series of conversations within the community about

socioeconomic goals early in the process. This dialogue should precede any discussion about allocation of catch as these goals should be used to design an allocation system that achieves the goals and they should be specific enough to evaluate in the future. In New England, the Council has already made changes to their outreach process as the monkfish fishery considers embarking on a new amendment that could include catch shares as an option.

There is no doubt that any discussions about socioeconomic goals are complex, difficult, and indeed painful in a fishery that is overcapitalized such as the New England groundfish fishery. But the upfront conversation and decisions by the Council is a necessary component of designing a management system that meets the socioeconomic goals of the community.

Models and Information

Although the term “catch shares” is new to the fisheries management lexicon, it is not a new concept. The idea of determining a total catch of fish and allocating that catch to individuals or cooperatives of fishermen has been used at local, state, and federal levels throughout the country and in other parts of the world. But these systems and their impacts on the fishing communities were understood by only a handful of individuals in New England. The Council members, as a whole, were either completely unfamiliar with or had only limited appreciation for the other efforts to design different management approaches.

The Council held a two-day workshop put on by the Fisheries Leadership and Sustainability Forum for Council members to discuss catch shares and hear lessons learned from other parts of the country. But, due to the tight timeline to implement the new groundfish plan and the Council’s limited resources, the workshop was *after* the vote to approve Amendment 16. Another workshop hosted by GMRI and Meridian Institute was held after development of groundfish sectors for Council members, fishermen, and government officials to explicitly discuss how socioeconomic objectives were addressed in other catch share systems outside of New England. Both of these workshops provided valuable information and insight for future catch share systems, but were unfortunately too late to impact the decisions made in the groundfish fishery.

There is a great deal of technical information transfer that can have tremendous value to the Council and the Council staff when designing a catch share system. The monitoring and reporting provisions for catch shares need careful consideration to design robust standards and a process that is reasonable for the industry to implement. The cost of designing and implementing new monitoring and reporting systems was a serious concern for New England. The Archipelago reports provided the Council with practical and factual information on which to base policy for New England’s groundfish sectors. This was a useful reference document that formed the basis of the Council’s monitoring policy. Seeking new information and technical advice when grappling with complex decisions can be a worthwhile investment.

Allocation Options

The determining factor in any catch share system is the formula for allocating shares of the total catch. For good reason, this is the most divisive, contentious, and controversial decision the Council needs to make. There is no simple way to engage fishermen and other stakeholders in the allocation discussions, but the approach should be thoughtful, deliberate, and transparent. The conversation needs to include a thorough vetting of the implications for each allocation formula being considered and the process for decision-making needs to be transparent.

In New England, permit holders were given inaccurate information about the landings history attached to their permits and the complete information came too late in the process for permit holders to fully appreciate how each of the allocation options being considered by the Council would impact their business. The fishermen did not know how their potential allocation would be translated into catch because the annual catch limit had yet to be established for the multiple stocks in the fishery. It would have been easier for fishermen to understand the impact of the options facing the Council and weigh in with meaningful comments if the formulas being considered for allocation had pounds of fish attached to them with hard numbers.

It is also important to consider other mechanisms to address the socioeconomic impacts of allocating catch to permit holders. Councils crafting catch share systems may want to consider a boat buy-back as part of the process to reduce excess capacity in the fleet. If consolidation is a concern, then it is important for the Council to address ownership caps upfront and have a deliberate debate about their merits. Other mechanisms include setting aside a portion of the allocation for the community to manage or funding a community permit bank.

Process

Any change to a fishery management plan takes time to navigate through the prescribed legal process. There are multiple requirements in Magnuson that include review under the National Environmental Policy Act (NEPA), Marine Mammal Protection Act, and other federal laws for compliance and required minimum time periods for public input. Dramatic changes to the system deserve even greater time to develop a series of meaningful options, to discuss and debate these options, to decide on the best options, and to begin implementation. This should be a sequential process where each step builds upon the prior decisions.

Unfortunately, this was not the case with New England's groundfish sectors as the Council was still making key policy decisions while NMFS was trying to address the many details of implementing a wholesale change in the management structure of the fishery. Although four years may appear to be a lengthy process, given the large number and great diversity of the groundfish permit holders, many of the fishermen who chose to sign up for sectors did not have a clear understanding of what these changes actually meant. Several of the sector managers were only hired a few weeks or even days before the opening of the fishing season. And NMFS was working overtime to try to make the current system better integrated with the new management structure and to write regulations to implement the

new measures. Writing regulations *prior* to implementation helps identify potential problems that need to be addressed but New England was not afforded the time to work through many of the details before fishermen were on the water fishing under an entirely new management system.

The New England Council was under a great deal of pressure to move forward with sectors in 2010. They were operating under a timeline mandated under Amendment 13 and they had already delayed a year to allow for time to fully assess the status of the groundfish stocks. The delay subjected industry to interim rules for the 2009 fishing year and many were ready to get out of the DAS. The national agenda to move toward catch shares was also pressuring the Council and NMFS to move forward quickly. It may prove to be a short-lived transition, however, if the rush to develop and implement sectors results in the ultimate collapse of the model due to inadequate time to work through the details ahead of time.

Another factor complicating the timing of the transition in New England was the parallel implementation of the new requirements under the Magnuson reauthorization. Many people, including members of the press, associated the new requirements for annual catch limits and accountability measures with the implementation of the sector program.

Considerations for the National Marine Fisheries Service

Management Transition

The earlier NMFS can acknowledge and accept that the management system is undergoing change, the better for all involved. This is obviously difficult with competing demands on staff time and resources but ultimate authority for fisheries management lies with NMFS and NMFS staff need to be actively engaged with the industry and other stakeholders to design a system that works. New England's transition to sectors has suffered due to the delay by NMFS to recognize and actively participate in the initial stages of development by sector organizers.

Once it was clear that a majority of the fishing industry was considering joining a sector and new resources from NMFS Headquarters were allocated, NMFS Regional Office in New England devoted significant staff resources and energy to establishing a new management framework. A key element was assigning an internal ombudsman to link the various divisions within the agency that needed to communicate. This new position operated directly out of the Regional Director's office, which gave him credibility and access to the key decision-makers.

Though difficult, the process of working with the industry to develop and implement a new management system presents an opportunity for NMFS to build positive relationships. It requires NMFS to be open to new ideas, remain flexible in their approach, and work collaboratively with others both internally and with sector organizers.

The National Marine Fisheries Service will need to continue to work on ways to build in *practical flexibility* throughout early implementation in order to remain as reactive as

possible to unforeseen circumstances. Changes will inevitably need to be made. When possible it may be best to limit the codification of new procedures. If an implementation process is codified in regulation it requires a whole new rule making procedure to make any alternations, using additional time and resources.

Database Systems and Technology

One of the sources of greatest frustration for all involved in establishing sectors in New England was the lack of accurate information on which to evaluate allocation options. Every allocation option being considered by the Council for groundfish fishing sectors was based in whole or in part on historical landings of permit holders. Yet, providing the landings history to each individual permit holder proved cumbersome and aggravating. The information systems regarding catch were not created with the individual fisherman's catch history in mind, but rather as a source of data for the assessment process. It is important to prioritize the integration of individual permit holder data before it becomes critical roadblock to development and implementation of catch shares. In addition, the multiple databases within NMFS, especially between the science branch and the regulatory branch, did not have the capability to be easily integrated.

The implementation of catch share systems demands accurate and timely information to be effective. While some database systems in other regions may already be designed to accommodate the new requirements, this was not the case in New England. The database systems to monitor catch and integrate reporting information were not up to task for the start of the fishing season. These systems need to be beta-tested and evaluated *before* there is an expectation that nearly the entire fishing industry will be using the system. It might be useful to look to other regions for examples of database systems and to fully evaluate the internal database needs in advance of implementation.

"Invest in technology - make sure everyone is invested in technology, is excited about it and really understands it."

Sally McGee, Former New England Fisheries Policy Director, Environmental Defense Fund Member, New England Fishery Management Council

While there are numerous factors to anticipate when designing a new management system, it is critical to assess the key technical elements upon which the success of the system depends. In the case of the New England groundfish fishery, the sector dockside reporting process hinges on the ability for vessels to hail out prior to fishing and hail in upon return to the dock. To the great frustration of many fishermen and sector managers, the level of technology infrastructure and aptitude for technology that is needed to make the system run smoothly is not presently available on many fishing vessels.

The larger, offshore vessels have more sophisticated technology than the smaller inshore vessels, many of which may not have an enclosed wheelhouse. This has created significant problems in communication between the vessel and NMFS or sector managers. The day

boat vessels have become marginalized by their lack of technology and the information needed to manage the sectors is not available.

Stock Assessments

There is a major disconnect between the amount of time it takes to accurately assess the groundfish stocks and the real-time nature of establishing a catch share system. Catch shares require NMFS to invest much more heavily in the assessment process for all the stocks being fished. A recent example of fluctuating assessments was in the Pollock fishery where the total allowable catch increased by 300% after the stock was assessed using a new model instead of using a survey index. While this is an extreme example, it points to the need for evaluating the assessment process.

If fishermen's annual catch is going to be based on an assessment of what is available to harvest at sustainable levels, then they want to know that the assessment is accurate and uses the most up-to-date information. Fishermen, regulators, and conservationists also want to be assured that the information being used for the TAC is not overly optimistic due to a delay in assessments and that potential overfishing is minimal.

Considerations for the Industry

Organization and Cooperation

The fishery management process in the United States is complicated, time-consuming, and often frustrating to navigate. It does not lend itself to the independent-minded open water fisherman who works long days at sea. It is nearly impossible for the average fisherman to engage with the process in a meaningful way. The ability to make significant progress on changing fisheries policy and engaging with the council process proactively forces the industry to get organized.

Some members of the New England groundfish fishing industry had been working together in various organizations for over two decades while there were other industry organizations that were new to the scene. However, the establishment of 17 new sectors in the region required a whole new level of organizational and legal structure to be put in place. While a few sectors were structured around active organizations and were prepared to move toward managing a group of fishermen, the Northeast Seafood Coalition created the majority of sectors and these were based on geography and/or gear type of their membership. Enrollment in these sectors was not limited to NSC members and therefore some sectors had members with minimal or no prior working relationships. This created a much larger learning curve for these sectors as the sector members need to have a sense of trust and common understanding before fishing under an allocation for which they are jointly accountable.

Some sectors have already taken advantage of better organization among members by creating permit banks designed to maintain or increase the sector's total annual allocation and make it available to the fishermen in the respective sectors and communities. Other innovative marketing cooperatives can also be established such as a community-supported fishery or direct sale to restaurants and retailers.

Engagement

It is often difficult to follow the myriad of regulatory changes that impact the fishing industry on a daily basis. The groundfish fishing industry in New England has been inundated with ever-changing rules, new information on the status of stocks, legal challenges and court orders, and press coverage that is often sensational. It is no wonder that many fishermen find themselves wanting to ignore everything and just go fishing. But fishermen can pay a hefty price for becoming disengaged with the fisheries management process that dictates how they will run their business.

Many hundreds of fishermen in New England either chose not to get involved in development of the sector program, thought that the whole idea would be tabled by the Council or through political pressure from outside the process, or felt too discouraged from the grueling Amendment 13 process. The public hearings to provide feedback on sector policy, including the allocation formula, were not well attended. It is true, however, that the fishermen had limited information on their potential catch under sectors due to delays, but there were many other parts of developing and implementing sectors that deserved close scrutiny by those fishing on the water. It is important to get engaged, stay engaged, and have a voice in the process.

Scientific Research

The scientific and fishing communities in New England have been fortunate to have numerous opportunities and dedicated resources for cooperative research. Some of this research has resulted in new gear technology to reduce bycatch of certain species and other results have greatly improved the amount of information needed for accurate assessments.

It is ultimately the status of the stocks and the science behind determining that status that drives the management actions of the Council and the regulatory actions of NMFS. The transformation to catch shares provides a new opportunity for the industry to become active partners in the scientific process. By understanding and participating in the collection and evaluation of the information used for stock assessments, the industry can critique critical assumptions and suggest potential new research ideas to gain more accurate information.

Considerations for Non-profit Organizations:

Funding

There is little doubt that non-governmental organizations in New England played a key role in enabling the groundfish fishing industry to transition to catch shares. Several organizations fulfilled various functions, from creating the venue for initial conversations about alternatives to the current management structure, to funding information exchanges for fishermen, to providing political pressure for change and, ultimately, to offering staff technical assistance and resources for development and implementation of sectors.

These organizations occupied a unique niche in the management process and their work would not have been possible without significant funding from private foundations and

other sources. While most of these resources were directed toward internal staff capacity and outreach efforts to industry, some of the resources were passed directly along to the industry to support their work developing sectors.

Industry Leadership

There have been a handful of exceptional leaders within the fishing industry, or representing fishing industry organizations, that have taken extremely risky positions and worked tirelessly to craft the best outcome. The majority of groundfish fishermen in New England felt they were faced with no choice but to succumb to sectors as the only alternative that had the potential to keep them in business. Well before they arrived at that conclusion, leaders in the industry had been working to develop a system that would be workable and practical while meeting the legal requirements of Magnuson. These leaders need an incredible amount of support to pull other fishermen along and pave the way forward.

In some cases, financial resources were available to provide compensation for time or travel to the multitude of meetings required of industry representatives. NGOs should work hard to find financial resources to support the key industry representatives that are embracing change and catalyzing change among the industry. There is also an equal measure of moral support and of other non-monetary means required to ensure that the leaders are recognized for their essential contribution.

Relationships

It is not easy to change people or change how people conduct their business. The fishing industry in New England has been scarred by false promises, misinformation, and extremely divisive politics. Not only is the Multispecies Fishery Management Plan complex due to the number of species it encompasses, it is also complex due to the diversity of fishermen who are trying to make a living off its bounty.

The NGO community often engages the fishing industry from ashore and with a different perception of the critical issues facing fisheries management. NGOs have an opportunity to reach out and transfer information, provide technical assistance, and create opportunities for dialogue, debate, and discussion. True change happens when people have trust in each other, confidence that moving forward is in their best interest, and support to take a risk. It is built on establishing open and meaningful relationships and a dedication to rolling up your sleeves and getting the messy work done together.

Epilogue

“People will stick to the familiar, even if they hate it, just because they know it. You see that a lot ... not only in fisheries, but a lot of things. It was time for a change.”

Glen Libby, Chairman, Midcoast Fishermen’s Association
Member, New England Fishery Management Council

A successful transition for New England groundfish management requires hundreds of individual fishermen to learn how to make the system work for them. While the effectiveness of sectors will be measured over time, early indications show promise. As of November 2010, fishermen in sectors were landing less fish than in 2009 yet making more money for those fish.^{lxxix} None of the sectors have exceeded their allocation and fishermen are experimenting with new ways to fish more selectively and avoid areas with high abundance of unwanted by-catch species.

The implementation of groundfish sectors has also resulted in intense frustration with the administrative burdens and failures of the communication systems for vessels. There have been legal challenges filed against the Department of Commerce questioning the decision to exclude sectors from the referendum requirement for limited access privilege programs and asserting that the allocation formula passed by the Council (and approved by NMFS) was not in compliance with MSA when it voted to use different criteria in setting allocations within the groundfish fishery.

Part of the attraction of sectors over an individual transferable quota system was the notion that the allocation was to the sector as a group to steward collectively and not an individual asset. Theoretically, this allows the sector members to pool allocation and offset each other’s catch so no one in the sector exceeds their limits. However, most sectors have elected to share the sector’s allocation based on each fisherman’s contribution to the sector (i.e. a fisherman can harvest the fish that he brought into the sector). Fishermen are treating their harvest share like an individual quota and there is an active market to lease allocation within sectors and among sectors. Those fishermen with greater resources are able to lease more quota and gain greater access to the fish while others have severely low allocations of certain stocks which makes it difficult for the system to work for them. Although the restrictions sectors provide may be the only thing protecting communities from massive consolidation, it is still a challenge to get participants in the sectors to appreciate the bigger picture to protect communities.

Sectors provide hope and there is some optimism among the industry. Fishermen are working together and finding new ways to cooperate. They are getting organized and making decisions about how they want to operate. Many are using incentives to keep fish within the sector such as charging a fee for leasing fish out of the sector. There have also been substantial efforts made to fund “permit banks” that provide capital for communities

to purchase permits that may otherwise leave the community by being bought elsewhere. And some sectors are considering how to better use creative marketing to gain a higher price for their fish.

Change is inevitable. The New England groundfish fishing industry has experienced numerous changes over the last two decades, but perhaps none as profound as the development of sector management. Change is painful. It requires leaving behind the familiar, implementing new operating systems, and taking on additional burdens. Change is hopeful. There is power in getting organized and learning how to cooperate. There are opportunities for new collaborations with scientists and greater information on the health of the resource. And there are potential economic efficiencies and new market opportunities.

"I see the power in it and I guess some people only see it as someone tying their hands. Some people just want to get in their boat and kill whatever their allocation is and not talk to anyone about it. I get it, and that's part of the transformation."

John Pappalardo, Chief Executive Officer, CCCHFA
Chair, New England Fishery Management Council

Timeline of Amendment 16 and Sector Development

2004	
May 1	Amendment 13 Implemented, adopting sectors as Frameworkable item and enacting GB Hook Sector for 2004 fishing year.
2005	
June 1	Framework 40A and 40B implemented to provide additional opportunities for vessels in the fishery to target healthy stocks of groundfish in order to mitigate the economic and social impacts resulting from the effort reductions in Amendment 13.
2006	
November 6	Joint workshop of Council's Groundfish Oversight Committee, Groundfish Advisory Panel, and Recreational Advisory Panel to develop the standards or principles to guide the development of Amendment 16.
November 6 – December 31	Amendment 16 Scoping Period; Quotas, Point System, Area Management and DAS proposals submitted by industry.
November 29 & 30	GMRI hosts meeting among industry leaders on Alternative Management Strategies for Amendment 16.
November 22	Framework 42 implemented, adopting further management measures to reduce overfishing through differential DAS counting and enacted GB Fixed Gear Sector for remainder of 2006 fishing year.
2007	
January	Magnuson-Stevens Reauthorization Act signed into law, establishing Annual Catch Limits (ACL), Accountability Measures (AM), and Limited Access Privilege Programs (LAPPs) among other revisions.
February 8	Council reviewed Amendment 16 scoping comments and voted to have Groundfish Committee further investigate the merits of modification to DAS (including the Performance Plan), the Points System, and Area Based Management for possible implementation in Amendment 16; Proposals for IFQs (including the Stewardship Plan) and hard TACs as a stand alone option were not accepted; Establishes Sector Omnibus Committee to modify sector rules.
April 4 & 5	Technical workshop on Area Management and Points as alternative management approaches hosted by GMRI and Massachusetts Marine Fisheries Institute.

May 1	Sector proposals for 2008 fishing year due to NMFS; 17 new proposals are submitted with preliminary rosters.
May 16	Technical workshop on modifications to existing DAS (Performance Plan proposal) hosted by GMRI.
June 19-21	Council decides to limit Amendment 16 to modifications to current effort control system and only sector proposals that have been previously submitted to NMFS; ITQ, Point System, and Area Management, deferred to a future Council action; Council approves broad "Sector Policy" and disbands Sector Omnibus Committee remanding details of sector policy to Groundfish Committee.
July 19	Facilitated conversation of sector allocations and management among northeast groundfish industry associations resulting in agreement that the catch history (and other mechanisms to the extent used) should go as long as possible (from 1996-2006, all inclusive).
September 18	Council directed the Groundfish Committee to postpone further sector development until that work was completed to meet May 2009 biological targets (including DAS modifications, ACL, and AM).
October 11	Facilitated discussion and preliminary agreements on catch monitoring for sectors among northeast groundfish industry associations.
November 7	Council directed the Committee to resume working on sector policies for inclusion in Amendment 16 and approved DAS modifications and hard TAC backstop to meet ACL/AM requirements.
November 13-15	Conference on "Improving Fisheries Management" held in Mystic, Connecticut sponsored by Sand County Foundation.
December 7	NMFS Northeast Regional Office (NERO) sends letter to Council expressing deep concern that Amendment 16 will not be completed on time and suggests delaying sector implementation until 2010. The letter also states that sector rosters must be frozen as of June 1, 2008 for NERO to calculate sector allocations for a May 1, 2009 start date. No vessels can be added or subtracted from the roster.

2008

January 15-16	Workshop on "Sector Allocation as a Management Tool" hosted by URI Sea Grant; NOAA Fisheries official states they have yet to determine if sectors are an LAPP and would therefore require a 2/3 vote of permit holders to be enacted in New England.
January 24	Council meeting focuses solely on sector issues and broad goals are established for sectors. The Council approves the allocation options to be included in Amendment 16.
April 16	Council delays the start date for Sector to May 1, 2010 and moves the sign-in date for sectors.

June 4

Council delays approval of the Draft Environmental Impact Statement (DEIS) for Amendment 16 when it appeared from preliminary assessment information that the management measures were targeting mortality reductions on the wrong stocks; [Archipelago monitoring report presented to Council](#).

September 4

Council requested NMFS to implement interim rules for fishing year 2009 and received the report of the Groundfish Assessment Review Meeting (GARM III). A new timeline for Amendment 16 is established.

October 9

Council clarified its vision to move toward output-based management after significant debate. The following motion by passed *“that it is the intent of the NEFMC to manage groundfish based on the best available science and move towards an output-based management system beginning with Amendment 16 and to be further developed in Amendment 17.”*

2009

January 16

NOAA Fisheries issued final guidelines guidance to Councils on how to comply with new annual catch limit (ACL) and accountability measure (AM) requirements in MSA.

February

Council approves Amendment 16 DEIS for public comment.

March 25

[NERO sends letter to permit holders waiving confidentiality requirements and allowing permit holders access to landings information without signed permission of the previous owner\(s\).](#)

April 7

NOAA Administrator, Jane Lubchenco, addresses Council and announced that NOAA was providing \$16 million in financial assistance to mitigate economic impacts of the interim rule and help people transition to the new era of sectors and catch shares that will be brought about by Amendment 16.

April 13

NMFS issues final interim rules for fishing year 2009, including an expanded differential DAS area in Southern New England (SNE), where a vessel will be charged 2 days for every day fished, and modified groundfish trip limits. The scheduled fishing year 2009 DAS reduction is also maintained, resulting in an approximate 18% reduction in DAS.

May 1

[NERO notified permit holders of their historic landings data over the two time periods being considered by the Council for sector allocations under Amendment 16 \(i.e., 1996- 2006 and 2003-2007\) and informed permit holders of the process to request corrections.](#)

May & June

Public hearings held on Amendment 16 DEIS and comments due on draft document by June 8, 2009.

June 9 & 10

[NERO first Monitoring Workshop for Sectors; NERO begins publishing “Sector News.”](#)

June 11	NERO notified permit holders of <i>modifications</i> to their historic landing data due to corrections of some sector allocation problems and provided PSC data for Option 5 of Amendment 16.
June 24 & 25	Council made final decisions on Amendment 16, including allocation formula.
August 19	NERO mails updated PSC data and preliminary DAS information to permit holders.
September 23	Council voted to develop additional fishing common pool effort control measures, beyond those previously developed under Amendment 16.
October 30	NERO notified permit holders of additional opportunity to join a sector, if the sector chooses to open its roster.
November 18	Council approved Framework 44 effort control measures for the common pool vessels , reducing the trip limit for GOM Cod and establishing a trip limit for pollock to reduce the likelihood that the common pool would exceed the ACL for these stocks. Council approved ACL for fishing years 2010-2012. ACLs are used to determine each sectors ACE.
November 20	Revised sector rosters due to NERO, though permits can be removed from the roster up to April 30, 2010.
December 23	NERO notifies permit holders of new PSC based on ACLs established at November Council meeting. Sector rosters are allowed to reopen to accept new members and current members may switch sectors.

2010

January 22	Final sector rosters due to NERO, though permits can be removed from the roster up to April 30, 2010.
March & April	NERO holds information sessions to explain 2010 groundfish fishing requirements.
April 9	NMFS publishes Final Rules for Amendment 16, Framework Adjustment 44, and FY 2010 Sector Operations Plans.
May 1	19 Sectors implemented comprising 762 permits and 98% of the commercial groundfish ACL.
May 26	NERO notified permit holders of revised ACLs for common pool vessels and for sector vessels and modified ACE allocation to sectors based on final sector rosters.
June & July	NERO held “Listening Sessions to solicit further feedback on new groundfish regulations” and training for vessel monitoring systems.

Acronyms

ABC	Acceptable Biological Catch
ACE	Annual Catch Entitlement
ACL	Annual Catch Limit
AM	Accountability Measures
CDQ	Community Development Quota
DAS	Day At Sea
EA	Environmental Assessment
GMRI	Gulf of Maine Research Institute
IFQ	Individual Fishing Quota
ITQ	Individual Transferable Quota
LAPP	Limited Access Privilege Program
MFA	Midcoast Fishermen's Association
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAMA	Northwest Atlantic Marine Alliance
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NERO	Northeast Regional Office
NMFS	National Marine Fisheries Service (a.k.a. NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
NSC	Northeast Seafood Coalition
PDT	Plan Development Team
PERC	Penobscot East Resource Center
PSC	Potential Sector Contribution
TAC	Total Allowable Catch
VTR	Vessel Trip Report

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