FISHING FOR A FUTURE

PROTECTING THE LEGACY OF THE NEW ENGLAND GROUNDFISH FISHERY

clf
conservation law foundation

BY PETER SHELLEY, ALLISON LORENC, ERICA FULLER, PRISCILLA BROOKS

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EXECUTIVE SUMMARY

CLF BEGAN THIS PROJECT TO IDENTIFY LESSONS LEARNED FROM THE NOTORIOUS ACTIVITIES OF CARLOS "THE CODFATHER" RAFAEL. As we dug into the details of the case, it quickly became evident that we had to approach Rafael's well-established, decades-long criminal career not simply as a reflection of his criminal predilections and enforcement shortcomings. We also needed to examine the poorly designed groundfish management system in which Rafael was a central character.

New England's historic groundfish fishery[1] transitioned to a catch share management system known as the "sector program" in 2010. At a time when the fishery was on the brink of collapse, sectors, which are self-organized management groups of fishermen,[2] were promoted as a tool that would offer increased flexibility and prosperity to the fishing industry while improving compliance, advancing stewardship, and reducing overcapacity in the fleet. Ten years later, some of these outcomes have materialized. Overcapacity has been significantly reduced and the sector program has introduced increased regulatory flexibility to the fishery. The profits of the active fishing vessels, in turn, have improved, at least on average. Catch share management, however, is about managing trade-offs, striking the balance between producing economic benefits and efficiencies while minimizing social costs and realizing desired community benefits. In that context, few of the available economic, social, or biological metrics related to management performance[3] are trending in directions that are consistent with notions of a successful, sustainable fishery.

Just as important, it is evident that the costs and benefits of the sector program have not been evenly distributed. The program has disproportionately advantaged larger fishing operations based out of a few major New England ports and disadvantaged the numerous and geographically diverse small-scale fishermen and their communities that historically relied on this fishery. One of those larger operations was Rafael's. While Rafael was, without question, a career criminal – a "pirate" in his own words[4] – it is important to acknowledge that many, if not most, of his fishing activities and business practices were consistent with the sector program's rules and regulations.

The design shortcomings of the sector program need to be acknowledged and addressed.

The sector program, as designed by the New England Fishery Management Council ("Council") and approved by the National Marine Fisheries Service (NMFS), did not limit consolidation or accumulation of excessive shares; it assumed but did not ensure enhanced sector self-enforcement; and it relied on an inadequate catch monitoring program. Moreover, the sector program included no meaningful measures that would have circumscribed Rafael's fishing behavior despite wide recognition that the largest operator in the program already had civil and criminal violations spanning more than a decade. These factors, combined with an untimely shakeup of the National Oceanic and Atmospheric Administration's (NOAA) regional fishery enforcement program,[5] created a situation that was easily exploitable by someone with Rafael's inclinations.

The design shortcomings of the sector program need to be acknowledged and addressed. The negative biological, economic, and social trends in the groundfish fishery are not intrinsic to catch share programs. Rather, they are predictable outcomes of a faulty development and implementation process as well as a program design that fell well short of policy and academic guidance on how to design catch share programs that protect fleet diversity and historic community access. These shortcomings will not likely resolve themselves in a way that ensures the continued participation of New England's once diverse groundfishing communities without management intervention.

Responsibility for the state of the current program lands at the feet of us all. The Council and NMFS, charged with managing this fishery consistent with the Magnuson-Stevens Fishery Conservation and Management Act[6] (MSA), rushed to implement this program without appropriate safeguards and then failed to retrofit those safeguards to the program in subsequent actions. The fishing industry reflexively resisted government oversight and took little responsibility for its role in the state of the fishery. CLF and others in the non-governmental organization (NGO) community promoted sectors, anticipating that they would create new incentives for stewardship and sustainability in the fishery once overfishing ended and populations were rebuilt as well as provide critical management flexibility to fishermen. In retrospect, those hopes were naïve, and they assumed government and industry follow-up actions that failed to materialize.

Finally, responsibility rests with Congress, which charged NMFS with implementing the MSA but limited its role to rubber-stamping or rejecting Council-developed conservation and management measures. This structure provides little practicable opportunity for NMFS to implement its own management measures as necessary to achieve full compliance with the law.[7]

The consequences of the groundfish sector program's flawed design and implementation, intended or unintended, continue to plague the fishery. Instead of bringing stability and economic prosperity to the fishery, many of the remaining fishermen in the sector program and their coastal communities are extremely vulnerable at this moment as a result of:

- multiple chronically overfished fish stocks,
- a rapidly consolidating fishery,
- fewer groundfish trips,
- flat to lower average prices for groundfish,
- lower total groundfish revenues and revenues per vessel,
- no meaningful quota and permit accumulation limits,
- increased concentration of revenue among fewer entities,
- aging permit holders and high barriers to entry for younger participants, and
- lack of timely biological, sociocultural, and economic data suitable for adaptive management.

In addition, this fishery, like many others, will confront multiple new stresses and challenges in the coming decades, including specifically the ecological, oceanographic, and biological changes arising from climate change.

Although this fishery struggled and was already contracting prior to the launch of the sector program in 2010, it is now virtually unrecognizable when compared to its historical antecedents. Without significant and immediate changes to the management system, fishermen and coastal communities with longstanding connections to groundfishing may be completely locked out of the fishery in the future.

CLF's review of the academic literature on catch share programs, as well as our research on certain U.S. West Coast and international catch share fisheries, suggests that the long-term success of any fishery management system is, in part, a function of its legitimacy in the eyes of the participants and their trust in the program. In addition to being committed to supporting healthy and sustainable fish populations, such fisheries share five traits: (1) strong alignment between the goals and objectives of the management program and the long-term shared goals and objectives of the fishermen in the program; (2) industry willingness to support adherence to the rules so that everyone is confident that all fishermen are playing by the same rules; (3) rigorous and transparent catch accounting so that scientists, managers, and enforcement officials have access to reliable and timely data on the fishery; (4) acceptance and trust in the fisheries science underlying management decisions; and (5) effective and fair external enforcement of the program rules.

Measured against such an ideal, the New England groundfish sector program suffers from the following core legitimacy and trust problems:

- persistent industry attitudes of neutrality at best, and hostility at worst, toward the sector program;
- regional enforcement issues including illegal discarding of vulnerable species at-sea;
- widespread dissatisfaction with the resolution of NMFS's investigation and prosecution of Rafael, his captains, and involved dealers that continues to color compliance with fishery regulations;
- mistrust of the science that informs management;
- lingering resentments over quota allocation;
- feelings of disenfranchisement of many fishermen with the management process; and
- lack of a shared vision for the fishery's future that addresses and promotes the diversity of the traditional fleet.

The goals and objectives of the sector program should align with the goals and objectives of the groundfish industry based on their shared vision for the future.

Years of sacrifice have failed to rebuild many overfished fish stocks, support viable small ports, particularly in downeast Maine and New Hampshire, produce strong and reliable markets for high-quality New England groundfish products, or promote cohesive stewardship norms. Instead, the fishery appears to be struggling more than ever, and only certain segments of the fleet, primarily those in the large, offshore category, seem to be prospering.

In this report, CLF proposes that the New England groundfish fishery orient itself toward what has been termed a "smart compliance policy" approach to fishery management,[8] which has two primary components. First, specific and measurable goals and objectives that align with those of the industry based on their shared vision for the future. Such alignment would strengthen the incentives for increased self-management and voluntary compliance. Second, a predictable federal enforcement presence on the dock and at sea that fairly, effectively, and transparently prosecutes violators. This would reduce the potential benefits – and therefore the likelihood – of illegal activities and remove corruptive influences from the fishery. If embraced, the smart compliance policy could bring fundamental change to the fishery to ensure the continued participation of small-scale fishermen and fishing communities that have traditionally fished in New England.

There has never been a more pressing time for the industry, the Council, and NMFS to confront and work through the persistent issues in this fishery. At the same time, it must be acknowledged that this is a particularly difficult time for the industry to think strategically about the future, as many fishermen already face a potentially overwhelming set of challenges. But there are signs of growth and promise in the fishery as well. Some sectors today exhibit significant cooperation and innovation despite the stresses and may provide the seeds of growth for others.

The report concludes that the industry – broadly defined to include owner and non-owner captains, mates, deckhands, shoreside workers, and representatives of historic groundfish ports – is in a good position to make the strategic decisions required. Whether the sector program needs minor tweaks or whether it should evolve into something entirely different is a question the industry should answer in the first instance. No group knows the fishery better or has a bigger stake in its long-term performance. NGOs and other stakeholders will also play critical roles when the time comes to debate and advance measures through the Council process. But if the industry waits for the Council or NMFS to prioritize and act on their concerns, it could be too late for many of its most vulnerable participants. Maintaining the historical diversity of this fishery would provide the most benefit to the industry and the public.

The MSA, though, ultimately holds NMFS responsible for providing for the continued participation of the region's fishing communities. NMFS must carry out its responsibilities in a more effective manner. This includes playing a stronger leadership role by firmly and repeatedly reinforcing that Council-developed conservation and management measures must comply with the MSA, all the national standards, and NOAA's Catch Share Policy. If the Council is unable to do so, then it is NMFS's responsibility to take such actions as are necessary to ensure that all applicable law and fishery management standards are met.

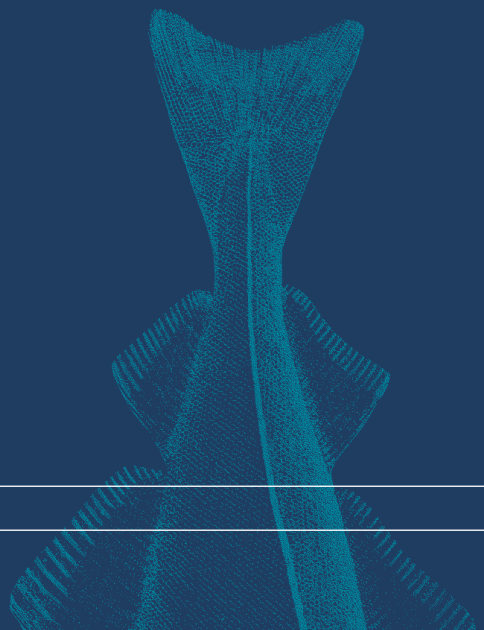
NMFS must also ensure that the Northeast Fisheries Science Center ("Science Center") develops accurate, timely, and granular social science data that can track the economic and social performance of the fishery in a timely manner to allow meaningful management adjustments if necessary.[9] Moreover, the Science Center must work with fishermen to reduce distrust in the science used to guide management. These improvements enhance the collection of sufficient, real-time data that could produce more widely trusted stock assessments and allow the Science Center to identify ecosystem shifts related to climate change in time for managers to respond to the extent possible.

Finally, NOAA's effective execution of its enforcement responsibilities is the glue that holds the entire program together. These responsibilities include (1) ensuring that NOAA's Office of Law Enforcement (OLE) plays a more visible and effective role in identifying and swiftly removing persistent violators – fishermen and dealers – from the fishery; (2) ensuring that the Enforcement Section of NOAA's Office of General Counsel (GC) effectively prosecutes repeat or serious violators to curb those behaviors and deter others; and (3) providing additional and transparent guidance to regulators and stakeholders on issues related to fishing violations that may need management attention.

Naturally, each reader will view the history and future of this fishery through their own eyes, experiences, and biases. Whatever one's perspective, CLF hopes that this report will promote discussions among the industry, the Council, NMFS, and other stakeholders about the future of this fishery and its participants – discussions that might lead to a path of long-term biological productivity and improved socioeconomic well-being.

In this report, CLF makes several recommendations to build resilience and profitability into this fishery's future:

- The industry should develop a shared vision for its future with specific, measurable goals and objectives for the management system.
- The industry and managers should address outstanding quota allocation issues and revisit "excessive share" accumulation limits in the sector program.
- NMFS should develop a comprehensive, interdisciplinary, and integrated participatory science and research program with the industry and regional educational and nonprofit research organizations.
- NMFS and the Council should use the best available science – including the full spectrum of social sciences[10] – supported by accurate and timely community-level data to inform management.[11]
- NMFS should ensure full catch accountability in the fishery from the vessels to the dealers or other wholesalers.
- NOAA's enforcement program should be strengthened in New England.



I. INTRODUCTION

ON NOVEMBER 6, 2017, CARLOS "THE CODFATHER" RAFAEL REPORTED TO FEDERAL PRISON TO BEGIN SERVING A 46-MONTH SENTENCE FOR HIS CRIMINAL ACTIVITIES WHILE RUNNING THE LARGEST FISHING OPERATION IN THE NEW ENGLAND GROUNDFISH FISHERY.[12] Rafael had been a prominent character in New England fisheries for more than two decades. He rose from the cutting floors of a New Bedford fish house in his teens to become the multi-millionaire mastermind of a vertically integrated fishing operation with scores of New Bedford-based groundfish and scallop vessels and significant processing/wholesaling facilities and operations. His uncompromising drive and cut-throat business tactics were major factors in the trajectory of his fishing career, but there is little question that his anarchist temperament and open contempt for regulations allowed him to thrive and expand while others foundered.

Rafael's permanent removal from U.S. fisheries and the outcomes of his criminal and civil proceedings prompted CLF to review the management of the New England groundfish fishery in which he operated – some 10 years after the implementation of the current catch share management system known as the "sector program." How was it possible that such openly defiant and illegal behavior could persist in a management system that was pitched as promoting self-management, stewardship, compliance, profitability, and flexibility? Was Rafael's behavior a unique circumstance or should he be seen as a symptom of underlying structural problems in the sector program that could continue to plague the fishery even after his removal? Would the sector program ever perform as promised, with or without Rafael?

"We were promised a lot and it didn't happen and look where we are today."

— GLOUCESTER FISHERMAN, SEPTEMBER 2019

In May 2020, CLF convened a working group of academic experts and other stakeholders involved with the development of the sector program to investigate these questions. As a result of their contributions, CLF's original focus on Rafael and potential ways to strengthen the enforcement program shifted to a deeper examination of the development and design of the sector program and its impacts on current management challenges, including fishermen's perceptions of the program. CLF reviewed years of New England Fishery Management Council ("Council") and other regional fishery management council records, social science literature, and federal guidance and publications on catch share programs and enforcement. Numerous people with perspectives on the fishery, fisheries management, biological and social sciences, and enforcement were also interviewed.

Regrettably, many potential interviewees including personnel at the National Marine Fisheries Service's (NMFS) Greater Atlantic Regional Fisheries Office, National Oceanic and Atmospheric Administration's (NOAA) Office of Law Enforcement (OLE), NOAA's Office of General Counsel (GC), and some fishing industry leaders declined to speak with us or answer written questions. Their perspectives on and institutional memories of the events covered in this report would have been valuable and allowed CLF to better shape and target its recommendations.

As a result of its review, CLF concluded that, first and foremost, Rafael was a career criminal who was willing to break the law for his singular advantage. He would have been a major problem in whatever management system he was allowed to participate. However, more important for the future of this fishery, fundamental structural flaws in the sector program did little to discourage or constrain him. It was a system that lacked critical characteristics of legitimacy or buy-in in the eyes of the industry – from vessel owners to captains to crew – who did not see the program as serving their best long-term interests. Based on public comments recently filed with the Council, many groundfish fishermen, even after 11 years of experience in the program, continue to view it as something to be tolerated rather than a program they trust, believe in, and are committed to making successful.

While some sectors have developed the principles of cooperation and stewardship that catch share programs are intended to encourage – and while a new major participant in the fishery, Blue Harvest Fisheries, Inc., might introduce a new business perspective and energy – the program overall is still falling far short of expectations. Many industry leaders, and even some past and present Council members, consider the program to be fundamentally flawed. NMFS, for its part, seems either willing or resigned to accept the current negative social and economic trends in the fishery, as it has not pressed the Council to adjust management measures and address such critical issues.

In this report, CLF uses "legitimacy" in its general political science sense:

"Legitimacy is commonly defined in political science and sociology as the belief that a rule, institution, or leader has the right to govern. It is a judgment by an individual about the rightfulness of a hierarchy between rule or ruler and its subject and about the subordinate's obligations toward the rule or ruler."

IAN HURD, "LEGITIMACY," ENCYCLOPEDIA PRINCETONIENSIS, PRINCETON UNIVERSITY (2021), HTTPS://PESD.PRINCETON.EDU/NODE/516.

NMFS's assurances that catch shares would lead to a brighter future have gone largely unfulfilled. In 2009, as the sector program debate was in full swing, then-NOAA Administrator Jane Lubchenco visited New England and made the following remarks:

"Recent scientific analyses show us that fisheries managed with catch share programs perform better than fisheries managed with traditional tools. Even in the first years after implementation, catch share fisheries are stable and even increase their productivity.

The scientific evidence is compelling that catch shares can also help restore the health of ecosystems and get fisheries on a path to profitability and sustainability.... I see catch shares as the best way for many fisheries to both meet the Magnuson mandates and have healthy, profitable fisheries that are sustainable."

ERIC STOKSTAD, "'THEY THAT GO DOWN TO THE SEA IN SHIPS,'" SCIENCE MAGAZINE, MAY 22, 2009, HTTPS://WWW.SCIENCEMAG.ORG/NEWS/2009/05/NOAA-MOVES-FORWARD-CATCH-SHARES

Compounding sector program design flaws has been a weakened federal enforcement program[13] that now needs an infusion of staff and resources, as well as a stiffened penalty system, to ensure that permits are revoked when appropriate and chronic violators are removed from the fishery. Rafael left the fishery with most of his illicit gains intact, his captains got off with only minor sanctions, and no charges were brought against the dealers who were involved. Furthermore, sectors generally are never audited for compliance with their operating contracts, and permit sanctions seem to have been abandoned even for serious, repeat offenders. As a result, some fishermen are – understandably – wondering why they should comply with the rules at all.

There are important lessons to be learned from New England's experience about the consequences of failing to follow available guidance and best practices for designing community-based catch share programs. The circumstances surrounding the development of the sector program precluded meaningful community engagement. Extraordinary time pressures, legal constraints, and resource limitations on management and science, all amplified by the inexorable ongoing biological collapse of key groundfish species, drove the timeline and account for many of the program's initial shortcomings. But past exigencies do not excuse the subsequent failures of the Council and NMFS to follow up on and resolve those important issues.

While what is past cannot be undone, the next chapter in the long history of the New England groundfish fishery has yet to be written. It is still possible to course correct and, by doing so, ensure the long-term diversity of the fishery, strengthen the fishery's resilience to the challenges ahead, and open new opportunities for the next generation of fishermen. This report is a synthesis of CLF's review of the Rafael episode and the sector program and includes a series of recommendations designed to stimulate discussions on ways to improve the current situation in this fishery. The goals are: (1) to reflect on unaddressed concerns about the current management system; (2) to identify problems with the design and implementation of the sector program that may have sown the seeds for current struggles and future challenges; (3) to highlight persistent compliance, accountability, and enforcement issues that plague the fishery; and (4) to encourage the industry to take ownership and responsibility for this fishery so that the fishery can achieve its ecological, economic, and social potential.

II. THE NEW ENGLAND GROUNDFISH FISHERY: PAST, PRESENT, AND FUTURE

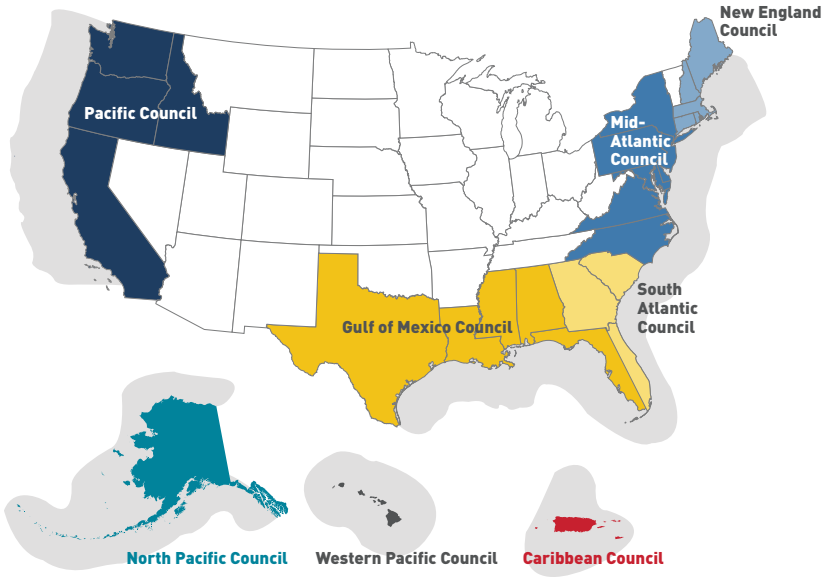
INDIGENOUS PEOPLE OF NORTH AMERICA SUSTAINABLY HARVESTED GROUNDFISH FOR THOUSANDS OF YEARS BEFORE EUROPEANS TOUCHED THESE SHORES,[14] BUT COLONISTS RAPIDLY EXPROPRIATED THOSE TRADITIONAL SUBSISTENCE FISHERIES. Commercial groundfishing, specifically cod fishing, became the first major U.S. colonial industry, accounting for 35 percent of the New England colonies' export profits.[15] Over the roughly four hundred years since, the fishery – with ports that have economically supported diverse cultures and communities widely distributed throughout the region – has weathered numerous biological, economic, and social ups-and-downs. Sadly, thousands have lost their lives to fishing, more than 10,000 from Gloucester alone.[16] But New Englanders still go down to the sea to fish for haddock, flounder, and cod, and the industry, perhaps against all odds, remains committed to the future of this once-great fishery.

A. THE MODERN ERA OF NEW ENGLAND GROUNDFISH MANAGEMENT

The modern era of groundfishing in New England is marked by the passage of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1976.[17] Motivated by a goal of expanding domestic U.S. fisheries, Congress ejected all foreign fleets from a 200-mile "fishery conservation zone"[18] around the U.S. and adopted the first comprehensive federal fisheries management program. The MSA establishes broad policy mandates that all U.S. fisheries must produce healthy and sustainable fish populations and achieve "optimum yield."[19] Conservation and management measures must use the best scientific information available, ensure fair and equitable access to and allocation of the nation's fish to fishermen, and provide for the sustained participation of coastal fishing communities consistent with the conservation objectives of preventing overfishing and achieving optimum yield on a continuing basis.[20]

In a unique approach to federal natural resource management, the MSA delegates significant responsibilities to eight regional fishery management councils, composed of primarily fishermen, fishing industry representatives, and state fishery officials, that operate under the oversight of NMFS. These councils develop and adopt fishery management plans (FMPs) and other management measures that must be approved or disapproved by NMFS based on their consistency with the MSA and other applicable law. NMFS then implements approved measures through regulations.[21]

Since Congress enacted the MSA, New England's groundfish fishery has undergone three distinct management phases. During the first phase, managers tried to regulate the rapidly expanding and increasingly technologically powerful U.S. domestic fleet with a quota-based system inherited from the international commission that regulated fishing off New England pre-1976.[22] This first phase was defined by unrestrained management chaos: massive bycatch, discarding, mislabeling, and misreporting problems and constant threats of fishery closures.[23] By 1981, NMFS had "come to recognize that there may not be a solution to the groundfish management situation."[24] The first quota-based system was abandoned a few years later.



NATIONAL MARINE FISHERIES SERVICE, *FISHERIES OF THE UNITED STATES*, 2014 (DATA) | GAO-16-827

The policy mandates established in the MSA are known as "National Standards for Fishery Conservation and Management." There are ten national standards. The ones relevant to this report include:

NATIONAL STANDARD 1: Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

NATIONAL STANDARD 2: Conservation and management measures shall be based upon the best scientific information available.

NATIONAL STANDARD 4: Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or entity acquires an excessive share of such privileges.

NATIONAL STANDARD 8: Conservation and management measures shall, consistent with the conservation requirements of this Act..., take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of [using best available science], in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

16 U.S.C. § 1851(A)(1),(2),(4),(8).]

New England groundfish fishermen were not only trained to discard cod, they were penalized if they did not do so.

The second management phase was ushered in by the fishery's first formal, Council-developed FMP in 1986, which aimed to prevent overfishing by indirectly controlling fishing effort through gear regulations, closed areas, and minimum fish sizes.[25] Particularly relevant during this phase was the implementation of the "days-at-sea program"[26] in 1994 that attempted to constrain fishing by limiting the number of days that a vessel could be on the water, supplemented by additional gear restrictions and closed areas.[27] The days-at-sea program, however, proved ineffective at preventing overfishing and rebuilding overfished stocks for a multitude of reasons. As a result, fishermen regularly experienced increasingly strict regulations that limited fishing opportunities.

Also during this time, managers implemented strict possession limits to disincentivize catch of certain overfished stocks such as Atlantic cod.[28] As a result, once fishermen reached their cod possession limits on a trip, they were required to throw overboard any additional cod they caught while going after other species. New England groundfish fishermen were not only trained to discard cod during this phase, they were penalized if they did not do so.

The third and current management phase is marked by the launch of the sector program on May 1, 2010. Sectors were not entirely new to New England (two sectors had previously formed on Cape Cod in 2004 and 2006), but the 2010 sector program represented a near-fleet-wide transition to a catch share management system, as a majority of the fishery returned to a quota-based system.[29,30] The final details of the sector program did not come into focus during the Council process until the last minute and were driven more by expedience and necessity than community engagement, deliberation, and forethought. This experience produced a multitude of bad feelings and resentment within the fishery that are still palpable today.

A Brief Timeline of the Northeast Multispecies Fishery

1930 – Scientists see negative effects of modern fishing on groundfish stocks

1951 – First meeting of the International Commission for the Northwest Atlantic Fisheries

1960s – Foreign "distant water fleets" dominate fishing off New England and deplete groundfish stocks; International Commission for the Northwest Atlantic Fisheries adopts quota-based management approach

1976 – Congress passes the MSA, ejects foreign vessels from U.S. waters, including a 200-nautical-mile offshore fishery conservation zone, and begins to subsidize the expansion of modern U.S. offshore fleet; New England Fishery Management Council is established

1982 – International Commission for the Northwest Atlantic Fisheries quota-managed system is abandoned and replaced by ineffective indirect controls on net size, closed areas, and minimum fish sizes
1984 – International Court of Justice delineates Hague Line that divides U.S. and Canadian waters, forcing U.S. fishermen to abandon historic fishing grounds
1986 – First FMP for the groundfish fishery (Northeast Multispecies FMP) is approved, continuing use of indirect controls on fishing

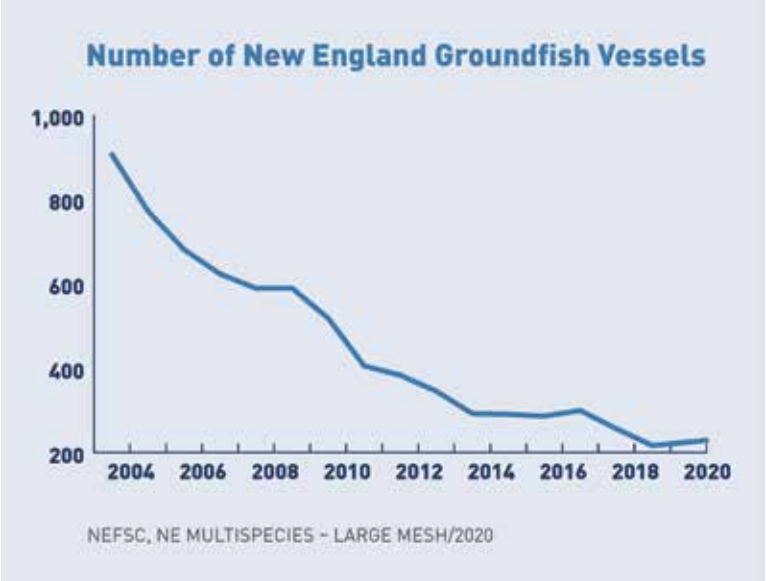
1994 – "Days-at-sea" program is approved, limiting fishing time on the water; scientists soon advise that management measures won't address collapsed stock
1995 – Secretary of Commerce declares first fishery disaster ($25 million to industry)
1996 – Congress enacts the Sustainable Fisheries Act of 1996 to prevent overfishing, rebuild overfished stocks, and protect essential fish habitat; moratorium on new individual fishing quota programs

2004 – Sectors are first approved, Georges Bank Cod Hook Sector forms, and multiple rebuilding plans are established for multiple groundfish stocks
2006 – Georges Bank Cod Fixed Gear Sector forms; Congress passes MSA Reauthorization Act, establishing annual catch limits and accountability mandates and authorizing limited access privilege programs

2010 – Groundfish fishery transitions to sector program
2011 – Gulf of Maine cod determined to be in worse condition than previously understood, leading to major quota cutbacks.
2012 – Second groundfish disaster declared ($33 million to industry)
2017 – Ineffective "excessive share" limits in sector program established

2020 – Council adopts plan requiring 100 percent at-sea monitoring

SEE "A BRIEF HISTORY OF THE GROUNDFISHING INDUSTRY OF NEW ENGLAND," NOAA FISHERIES; SEE ALSO, "FISHERY DISASTER DETERMINATIONS," NOAA FISHERIES, HTTPS://WWW.FISHERIES.NOAA.GOV/NATIONAL/FUNDING-AND-FINANCIAL-SERVICES/FISHERY-DISASTER-DETERMINATIONS; SEE ALSO, "NORTHEAST MULTISPECIES (GROUNDFISH): MANAGEMENT OVERVIEW," NOAA FISHERIES, HTTPS://WWW.FISHERIES.NOAA.GOV/SPECIES/NORTHEAST-MULTISPECIES-GROUNDFISH#MANAGEMENT



Today, New England's groundfish fishery is a fraction of its former self. Over half of the managed stocks are persistently overfished,[31] the fleet is reduced to about 228 active vessels[32] that primarily land fish in three major ports, and many fishermen must depend on leased fish (often at exorbitant prices) from quota holders who no longer actively fish. Although the fishery had been in decline for some time, the sector program's failure to produce positive results for most participants in the fishery has left many of those remaining in the fishery understandably angry, discouraged, and resigned.

The program's lackluster performance and the persistent negative biological trends in many of the groundfish stocks are particularly concerning as the fishery enters a critical new phase. This new phase will not be defined by a specific management shift but rather by a set of converging circumstances:

1. The Rafael legacy: Enforcement in the Rafael case did nothing to strengthen attitudes about the rule of law or incentivize compliance with regulations. Although certain fishermen claim to have "moved on," the notion that cheating paid off for Rafael, his captains, and his dealers hangs over the fleet.

2. Blue Harvest Fisheries, LLC: With the assets acquired from Rafael and other major groundfish operations, Blue Harvest Fisheries, LLC – a vertically integrated corporation and newcomer to the fishery – instantaneously became the single largest groundfish permit holder in the fishery. On one hand, Blue Harvest Fisheries represents what many in the fishery feared most about catch shares, that is, a fishery transitioning to investor-backed corporate ownership. On the other hand, Blue Harvest sees itself as a change agent promoting accountability, traceability, and stewardship.[33] Time will tell what long-term changes this new major player will bring to the groundfish fishery.

3. Statutory rebuilding requirements: Contrary to the mandates of the MSA, over half of the stocks in the groundfish fishery are overfished[34] – some for decades. In the case of Gulf of Maine and Georges Bank cod (both of which are overfished and subject to overfishing), their current rebuilding plans are reaching their end dates,[35] and there has been no progress toward rebuilding.[36] The MSA is clear that the Council and NMFS must rebuild these stocks to sustainable populations in ten years or less, yet the Council has not developed, and NMFS has not required, feasible options to do so.[37]

4. The transition to full catch accountability: Successful fisheries, especially those managed with catch share programs, need accurate catch data to comply with statutory regulations and achieve management objectives. In the case of the sector program, such catch data are collected through vessel trip reports and at-sea monitoring, but the percentage of monitored trips has been woefully inadequate.[38] The Council recently voted to increase at-sea monitoring to 100 percent coverage rates to improve catch data and prevent illegal discarding.[39] Such a program, if approved by NMFS and when fully implemented, should

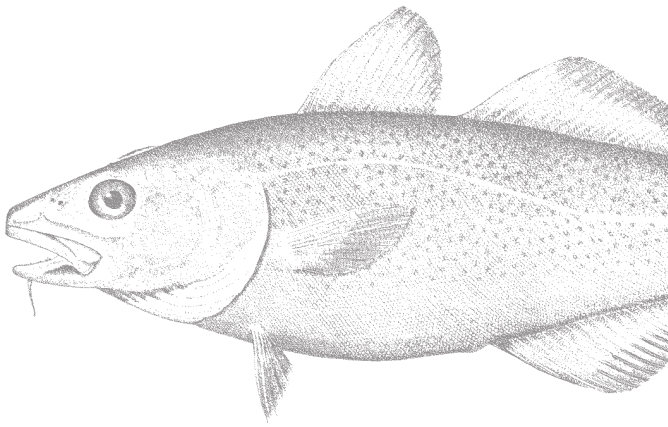
significantly increase incentives for at-sea compliance with catch requirements, improve stock assessments, and build confidence in a level playing field. Full catch accountability will also dramatically increase the importance of intra-fleet cooperation, real-time information exchange, and technology advancements to avoid catching quota-limited stocks while fishing for other more abundant groundfish species.

5. Climate change–related stock changes: Climate change is driving shifts in species distribution, abundance, and productivity – altering entire ecosystems and undermining the predictive power of fishery statistics and models that are largely based on historical data and productivity assumptions. Many fishermen already have little confidence in the science used to manage their livelihoods, and climate change effects can only exacerbate existing tensions and scientific uncertainties unless relationships between fishermen, scientists, and managers are improved. Real-time fishery-dependent and fishery-independent data, modern data management systems, and strategic and effective cooperative research will be key to addressing climate change impacts in the fishery.

6. Collapse of important forage species: The collapse of certain forage species that are important prey for many council-managed species has had ecological and economic consequences on the groundfish fishery. For example, Atlantic cod were associated with river mouths that once teemed with river herring and other anadromous prey species. Those prey species were depleted as a result of river barriers, such as dams, that blocked access to spawning sites. Other forage species such as Atlantic herring and Atlantic mackerel are also at extremely low abundance (currently designated as overfished), resulting in less available food for groundfish stocks.

7. Offshore wind: Major offshore wind projects are coming to fruition in New England's waters. According to one fishing industry advocacy group, the offshore wind planning process has not left "many commercial fishing communities with optimism, excitement, or hope for their existence."[40] Offshore wind farms can present significant navigational and fishing challenges. Industry efforts to organize itself to engage with the wind industry to properly consider and address fishing concerns during wind farm planning and permitting are draining already limited resources.[41]

8. COVID-19 and the "new normal": The government-mandated shutdowns and travel restrictions in response to the COVID-19 pandemic crippled businesses, supply chains, and markets. At the same time, the health disaster created new opportunities for innovation such as establishing "dock-to-dish" programs and supplying food pantries with fresh, local seafood. The Biden administration's "Build Back Better" orientation toward pandemic recovery and a federal focus on the American Blue Economy[42] may supply critical funding and agency support to help the New England groundfish fishery, particularly if an industry consensus could be reached on infrastructure needs.

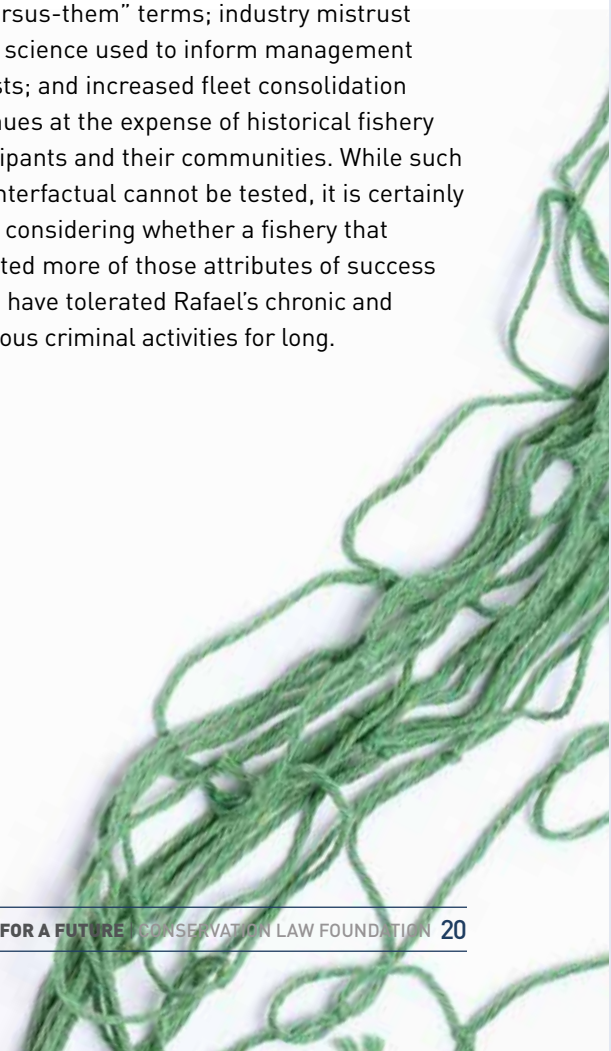


Each of these circumstances presents its own challenges; combined, they are daunting. And it appears that the smaller-scale fishing operations – particularly those that have not already diversified into other fisheries – as well as the coastal communities they support will have the hardest time making progress into these headwinds. Their historical performance notwithstanding, NMFS and the Council should lead strategic discussions on how to appropriately address the challenges faced by the traditional, community-based groundfish fleet. Fishermen, however, face a stark choice: they can watch passively in the face of ineffective government oversight and lack of accountability as their traditional fishery collapses further, or they can attempt to exercise agency over their future.

The notion of an industry-led process struck many seasoned reviewers of earlier drafts of this report as pie-in-the-sky thinking, particularly in a fishery where management initiatives have always been "enormous, immensely complicated intervention[s]."[43] CLF's view, though, is that the industry is in a good position to know how to improve the trajectory of this fishery. Recent port meetings held by Gulf of Maine Research Institute (GMRI) operating under contract with the Council identified significant industry interest in addressing the persistent management challenges in this fishery through cooperative research projects, increased use of fisheries-dependent data, and improved engagement.[44] Despite decades of frustrations with management and their fishery, "[t]he overriding tone of the meetings was of a passionate devotion to the fishing industry and a commitment to ensuring its future."[45]

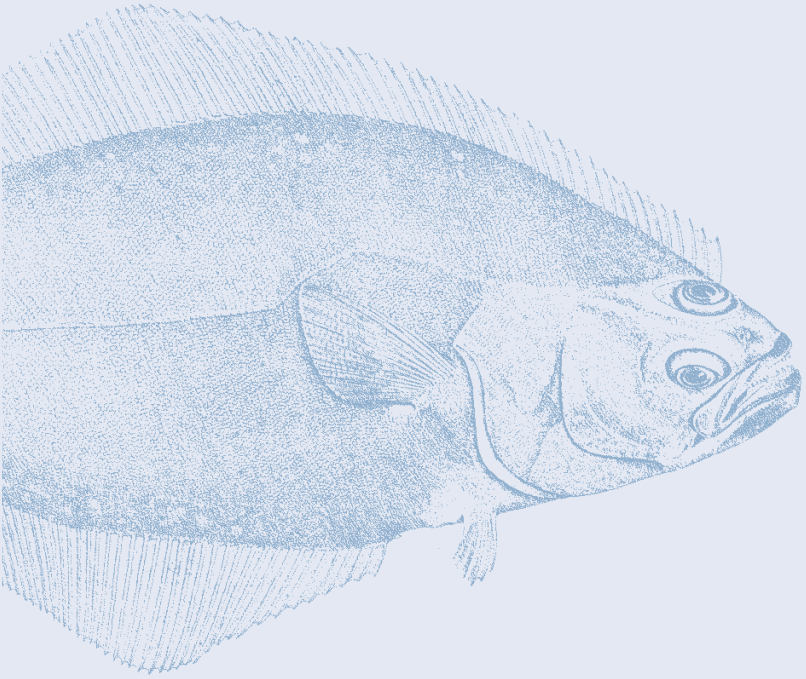
Based on CLF's research, it seems that many of the most sustainable, healthy, and diverse fisheries in the U.S. and elsewhere have a number of shared attributes: healthy fish stocks that support strong and reliable markets for local fish, viable small ports across the region, mechanisms for new entrants, a strong alignment between the management program's goals and objectives and those of the industry, strong norms of full accountability and compliance, and an effective external enforcement program.

From CLF's perspective, the New England groundfish sector program currently exhibits few of those attributes. The industry seems to have neutral feelings at best, open hostility at worst, toward the sector program; full accountability is still resisted by a number of fishermen and industry leaders; enforcement and compliance continue to be seen in "us-versus-them" terms; industry mistrust of the science used to inform management persists; and increased fleet consolidation continues at the expense of historical fishery participants and their communities. While such a counterfactual cannot be tested, it is certainly worth considering whether a fishery that exhibited more of those attributes of success would have tolerated Rafael's chronic and notorious criminal activities for long.



B. THE NEW ENGLAND GROUNDFISH SECTOR PROGRAM

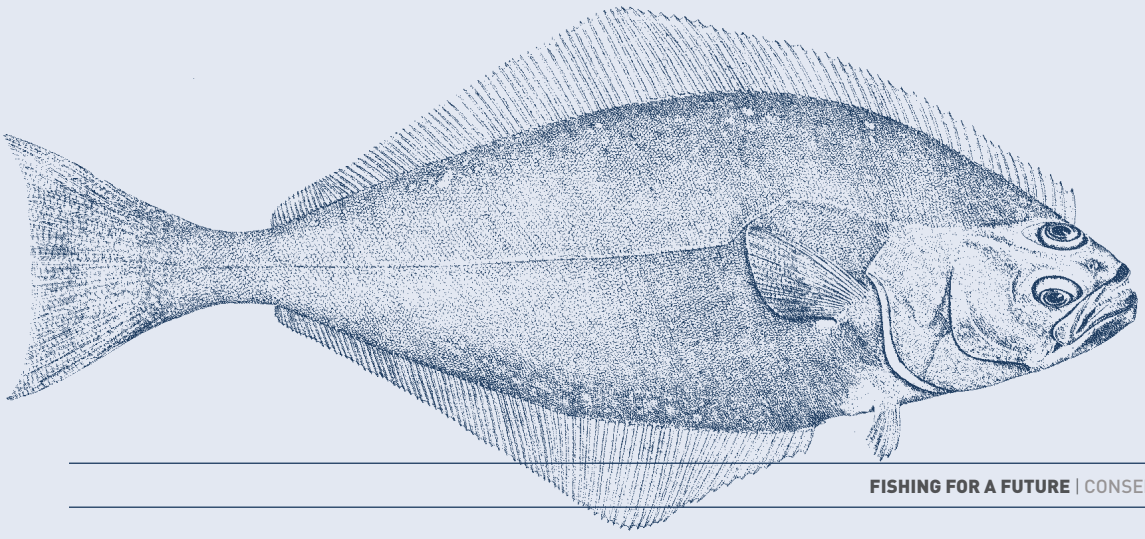
The New England groundfish sector program is one of many U.S. catch share programs.[46] The term "catch share program" applies to fishery management systems that "allocate a specific portion of the total allowable fishery catch to individuals, cooperatives, communities, or other entities. Each recipient of a catch share is directly accountable to stop fishing when its exclusive allocation is reached."[47]



NMFS attributes numerous benefits[48] to catch share programs that are properly designed and implemented:

> *Catch share programs are a proven fishery management tool that allows flexibility and accountability in fisheries worldwide. Used appropriately, they are essential in meeting our national goal of rebuilding and sustaining our fishery resources. They can reduce the negative biological and economic effects experienced in fisheries where other fishery management tools—trip limits, days at sea limits, time and area closures—were previously used.*[49]

Sectors were first approved as a management tool in New England in 2004 through Amendment 13 to the Northeast Multispecies (Groundfish) FMP ("Amendment 13").[50] At the time, fishing pressure needed to be drastically reduced to rebuild overfished stocks. Some fishermen switched to other fisheries or were forced out of the fishery entirely.[51] In anticipation of adverse impacts on their fishing, certain fishermen on Cape Cod advocated for a quota-based sector approach as an alternative to the underlying days-at-sea program to help preserve their access to the groundfish resource.

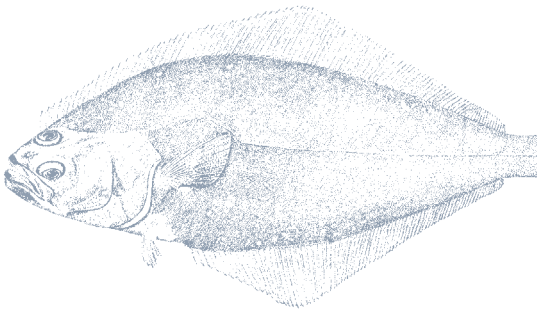


The Georges Bank Cod Hook Sector was the only sector approved under Amendment 13; the Georges Bank Cod Fixed Gear Sector was approved soon thereafter. Both of these sectors served small-scale fishermen from Cape Cod. These sectors received quota for Georges Bank cod based on their cod fishing histories during the 1996–2001 period. Their allocation was limited to 20 percent of the fishery's allowable catch for Georges Bank cod. In return, they agreed to fish in particular areas with specified fishing gears – and to stop fishing once they reached their quota. Fishermen in the Cape Cod sectors could catch their allocated quota without fear that a race to fish under the days-at-sea program would close the fishery prematurely.[52] At the time, the Council and NMFS rationale for these sectors was that they could increase self-governance, reduce capacity (vessels could cooperatively consolidate their efforts), offer flexibility, and encourage stewardship.[53,54] CLF's experience with the first two Cape Cod sectors bore out much of this promise.

Soon after Amendment 13 was implemented, the Council began work on the next major FMP amendment, Amendment 16 to the Northeast Multispecies FMP ("Amendment 16"). Amendment 16 was initiated to make "mid-course corrections" to the groundfish rebuilding programs implemented under Amendment 13, and the Council planned to "consider alternative management systems in addition to adjustments to the existing [days-at-sea] effort control system[.]"[55] The groundfish industry took the Council at its word and proposed a number of alternative management systems, including hard quota programs, individual quota programs, a point system approach, area-based management, a recreational limited entry program, modifications to the days-at-sea program, and sectors.[56]

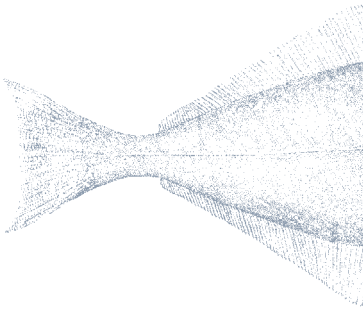
The Council was operating under a strict time limit to develop and adopt the rebuilding program updates. Amendment 16 took on added urgency when Congress required, as part of the 2006 MSA reauthorization, that NMFS implement science-based annual catch limits (ACLs) and accountability measures for all stocks subject to overfishing by 2010 and no later than 2011 for all other managed stocks.[57] After much debate, and at the urging of NMFS, the Council concluded that it did not have the time or the analytical tools to address the industry's alternative management proposals and committed to consider them in the next amendment.[58,59] Neither the Council nor NMFS honored that commitment. Additional sectors remained under consideration in Amendment 16 because they were already an approved management tool and because many fishermen outside of the Cape Cod sectors had expressed an interest in forming sectors during the Amendment 16 process.

In the end, fishermen had two options when Amendment 16 went into effect: enroll in a sector or remain in a "common pool" program where they would be subject to severely restrictive and inflexible days-at-sea limitations and other highly constraining indirect controls.[60] When the sector program was fully implemented, permit holders representing roughly 99 percent of the commercial groundfish landings were enrolled.[61] They had no choice as a practical matter.[62]



A 2010 survey of the groundfish fishery revealed that **46 percent** of the respondents who joined sectors **"felt forced into joining or felt they had no other choice."** Only 24 percent of the respondents who had joined sectors did so for positive reasons.

DANIEL S. HOLLAND ET AL., "A SURVEY OF SOCIAL CAPITAL AND ATTITUDES TOWARD MANAGEMENT IN THE NEW ENGLAND GROUNDFISH INDUSTRY," NEFSC DOCUMENT NO. 10–12, JULY 2010, AT 7.



Under Amendment 16, sectors are defined as "associations of vessels that can join together to take advantage of flexibilities and efficiencies that sectors are afforded."[63] The only restriction is that a sector must be "a group of three or more persons, none of whom have ownership interest in the other two persons in the sector...."[64] The regulations require each sector to ensure that the cumulative groundfish catch of its members stays within the sector's annual catch entitlement (ACE). ACE is the sum of the quota allocation per stock assigned to each sector member's permit (known as a member's potential sector contribution (PSC)),[65] and the ACE for each stock can vary year-to-year depending on that stock's annual catch limit. A sector can only fish for a certain stock if it has sufficient ACE for that stock, and all members must stop fishing if the sector reaches its ACE unless it acquires additional ACE by leasing it from another sector.[66] Any ACE overages at the end of the fishing year are deducted from the sector's ACE for that stock the following year.[67] In the event of an illegal overage or other regulatory infraction, sector members can be held jointly and severally liable.[68]

Sectors have the flexibility to create their own internal operating rules related to ACE allocation, catch monitoring, and enforcement.[69] In theory, a sector's ACE could function as a community quota, but in practice, each sector generally apportions its available ACE back to its members to fish based on the PSC each of those members contributes to the sector.

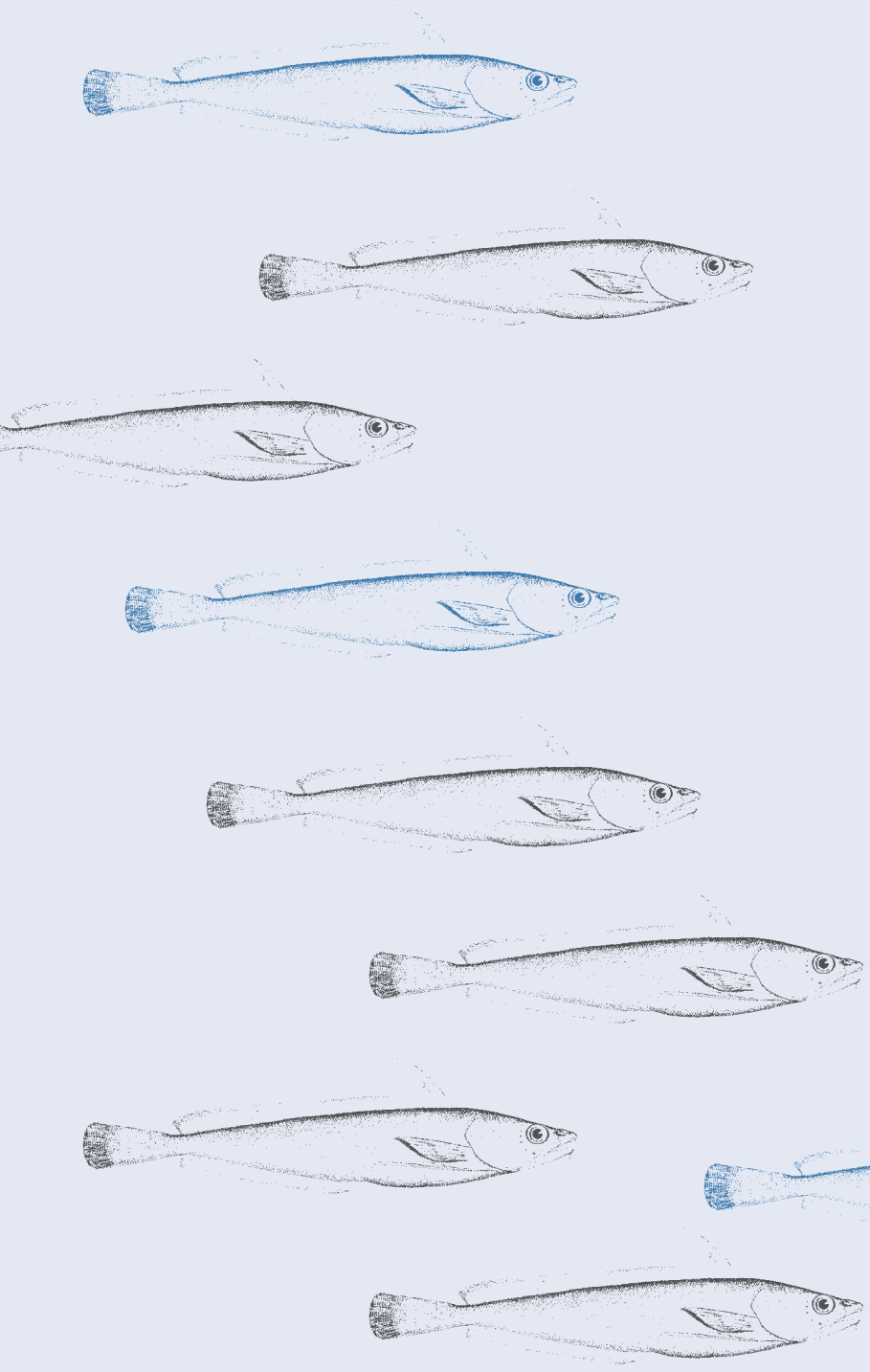
In the rush against the clock, elements known to be critical for the management and performance of successful catch share programs were not included in the sector program's design. Among the most central – and continuing – shortcomings was the failure to specify specific and measurable goals and objectives for the program. Moreover, sectors organized under Amendment 16 had no quota allocation limits like those under Amendment 13, and the approved monitoring program was entirely inadequate for collecting accurate and precise catch data. The Council and NMFS committed to addressing the control of excessive shares and concerns around fleet consolidation in a later amendment.[70] They never did so, at least in a meaningful way from the perspective of managing consolidation pressures to ensure fleet diversity and continued community participation.[71]

NOAA's Catch Share Policy identifies the benefits of specifying goals and objectives:

"By specifying its future vision for a fishery a Council can then adopt tailored allocation, transferability and adaptive management design elements to promote goals such as sustained community participation, allowance for new entrants, and preservation of owner-operated fleets, rather than leave such potential desired outcomes to chance."

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION, "NATIONAL MARINE FISHERIES SERVICE POLICY 01-121: CATCH SHARE POLICY" RENEWAL, APRIL 2019, HTTPS://MEDIA.FISHERIES.NOAA.GOV/DAM-MIGRATION/01-121.PDF, 11.

C. PERFORMANCE OF THE SECTOR PROGRAM



In 2021, more than 10 years after the implementation of Amendment 16, the Council completed its first "five-year" review of the sector program's performance ("2021 Catch Share Review").[72,73] The purposes of such reviews are specifically prescribed in NOAA's Catch Share Policy: "Councils should periodically review all catch share and non-catch share programs. The intent is to ensure that management goals are specified, measurable, tracked and appropriate steps taken to ensure a program is meeting its goals and objectives."[74]

The analysis in the 2021 Catch Share Review was primarily based on available social, economic, and biological data from May 1, 2007 through April 30, 2016 (fishing years 2007–2015).[75, 76] Extensive stakeholder feedback about the program was also collected during a series of port meetings with industry[77] and from written public comments. The Council's analysis, however, was limited to little more than a before-and-after program implementation comparison, given the sector program's lack of explicit goals and objectives against which to measure its performance. Further, the review had little utility for purposes of meaningful corrective management actions because six years had passed since the data analyzed in the evaluation was collected.

Nevertheless, the 2021 Catch Share Review showed that significant changes occurred between implementation of the sector program in 2010 and 2016. For example:

- active groundfish permits declined from 1,210 to 820;
- active groundfish vessels declined by 37 percent, more than double the rate of decline between 2007 and 2009;
- small, mostly inshore vessels (<50 feet) declined by 45–48 percent and at a higher rate than the larger vessels (21 percent);
- New Hampshire lost 53 percent of its active groundfish vessels, Maine lost 38 percent, and Massachusetts lost 35 percent;
- groundfish trips declined by 38 percent (compared to only a 4 percent decline pre-sectors, 2007–2009);
- groundfish landings and revenue hit a nine-year low in 2015;[78] and
- crew trips and days fished declined by 36 percent and 23.5 percent, respectively, between 2007 and 2015.[79]

On the more positive side:

- the number of stocks subject to overfishing declined;[80]
- two crew surveys reflected an increase in job satisfaction and feelings of job safety;[81] and
- occupational fatalities significantly declined from 2006 to 2015.[82]

The 2021 Catch Share Review did not reach conclusions about whether the program had produced improvements in enforcement and compliance in the fishery; however, it did note that "[e]nforcement of unlawful discards is a primary concern for enforcement of the groundfish sector program and has proved very challenging."[83] The 2021 Catch Share Review was also unable to analyze or reach conclusions on the degree to which the various sectors had achieved improvements in self-governance.[84]

More recently, macro socioeconomic data available from the Northeast Fisheries Science Center ("Science Center") reveal that groundfish revenues, the number of active vessels, and the number of trips have continued to decline on average, and economic inequality in the fishery has increased.[85] Fewer ports were "highly engaged"[86] in the fishery, and notably, no ports east of Portland, Maine were identified as being highly engaged any longer.[87] The biological estimates of the groundfish resource fared no better. Twelve of the twenty managed stocks were identified as overfished and three were still subject to overfishing.[88]

The fishery has, on the other hand, realized the predicted individual efficiency and productivity results that are typically associated with the consolidation produced by catch share programs, including a 26 percent increase in groundfish revenue per vessel and an 84 percent increase in groundfish revenue per trip between 2010 and 2019.[89] These results, of course, came at significant social and community costs, as the fishery contracted to fewer active vessels and active groundfish ports. Unfortunately, there were few sociocultural[90] data collection efforts undertaken to describe the costs of this consolidation at a more detailed community level.

Selected Industry Views on the Sector Program

"This whole fishery is broken, why are we working so hard to fix it if no one else even cares. If managers won't act, if NOAA sits on the sidelines, if scientist [sic] won't work with us to fix what everyone says is a problem why should we keep trying."
— MAINE SECTOR FISHERMEN

"Catch shares are an unmitigated disaster for the New England groundfishery."
— MASSACHUSETTS FISHERMAN

"I'm hesitant to even send these comments [during the review] because in the back of my mind I'm thinking that those responsible are reading these comments and high five-ing one another over the success of this scam. Bottom line... catch shares are a destructive force favoring the few at the expense of the many. Thanks for nothing."
— RHODE ISLAND FISHERMAN

SEE "GROUNDFISH CATCH SHARE COMMENTS," NEFMC, 2019, HTTPS://S3.AMAZONAWS.COM/NEFMC.ORG/ALL-CATCH-SHARE-COMMENTS-SEPT-27-2019.PDF

The negative-trending socioeconomic metrics in the 2021 Catch Share Review are reinforced by one of the few longitudinal social science research projects undertaken with this fishery. That study, spanning 2013–2018, found:

> *[W]idespread and chronic psychological distress and social disruption [existed] in New England fishing communities following the failure of the iconic groundfish fishery for Atlantic Cod.... [C]ategories of moderate or severe psychological distress represented 53 to 62% of captains across all years. ... Social capital in the fishing industry, measured as trust in other fishers and fishing business partners, was moderately high across years. However, trust in government, fisheries management, and environmental nongovernmental organizations was generally low.*[91]

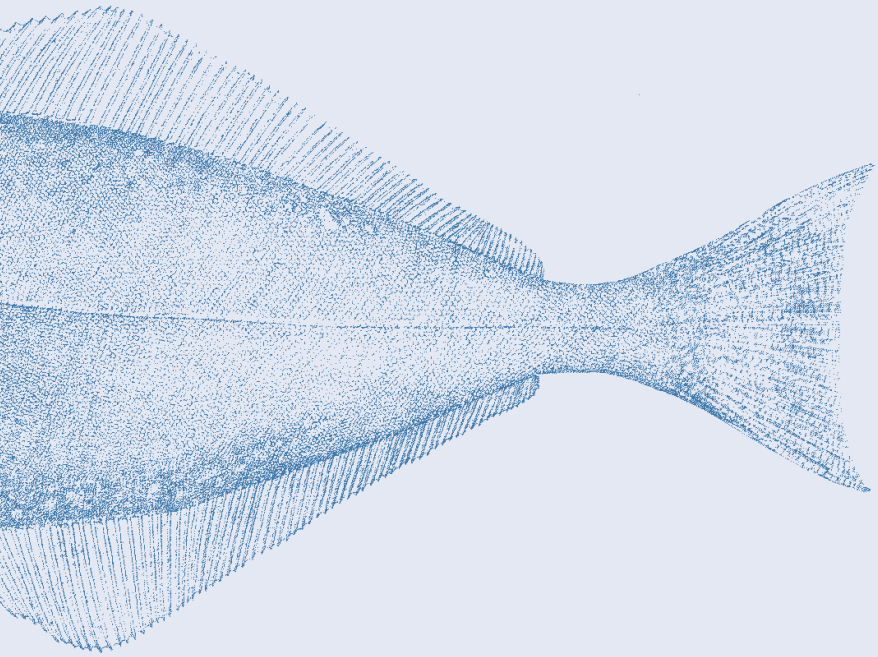
Qualitative feedback from the industry collected during the 2021 Catch Share Review mirrors the fishery's unsatisfactory performance metrics. Overall, the industry was highly critical of the sector program's performance. The most common criticisms were directed at the stock assessment process,[92] but the criticisms extended well beyond concerns about the science. One stakeholder warned that "inherent flaws in the scientific assessment process and management system ... will undermine the success of any fishery management program unless they are resolved."[93] Generally, the industry comments underscore the lack of legitimacy and trust in both the sector program and the overall management structure in the eyes of many fishermen.

CLF shares many of the concerns raised by the industry and others about the declining state of the groundfish fishery and the ability of the sector program as currently designed to address these problems. A decade into this program, the former director of the Massachusetts Division of Marine Fisheries posed the following question during the 2021 Catch Share Review: "After many years of experience with some trial and error, how is the catch really being 'shared'?"[94] It is troubling that such a prominent fisheries official and long-time Council member even has to ask such a fundamental question. And worse still that it cannot be answered due to a lack of vessel-level and community-level sociocultural and economic data.

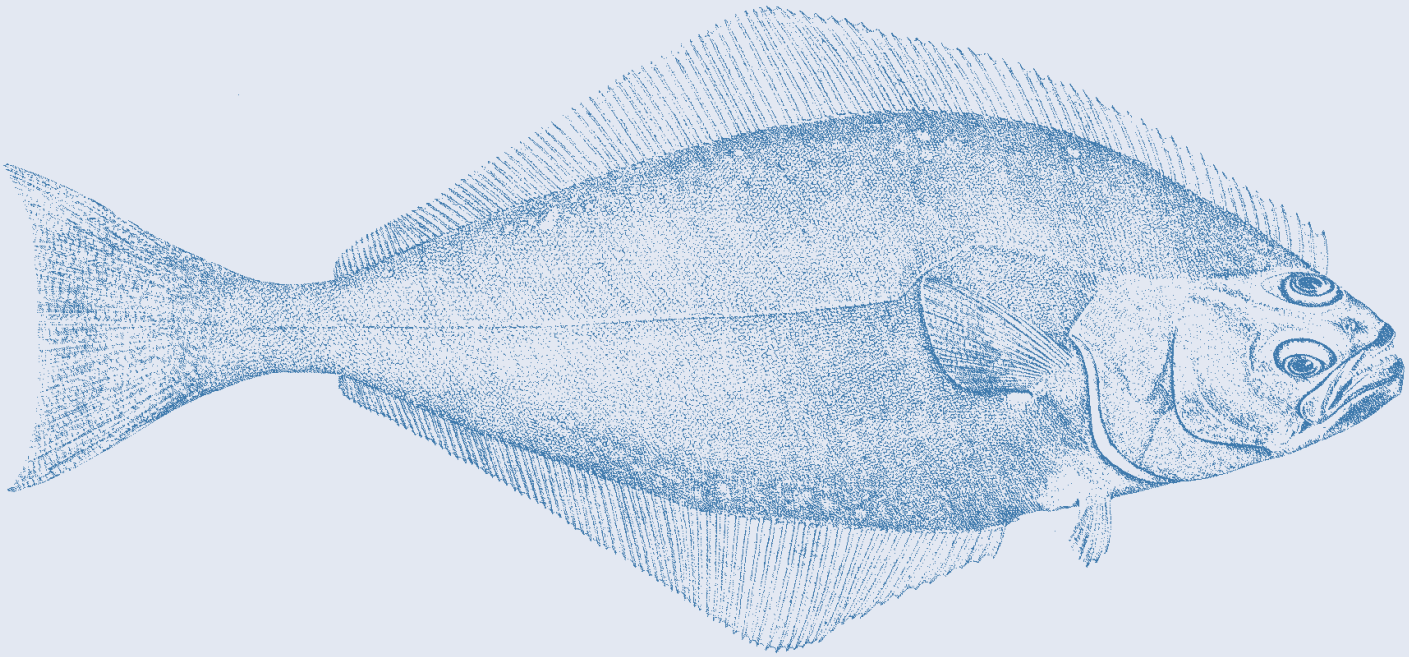
III. DESIGNING A CATCH SHARE PROGRAM

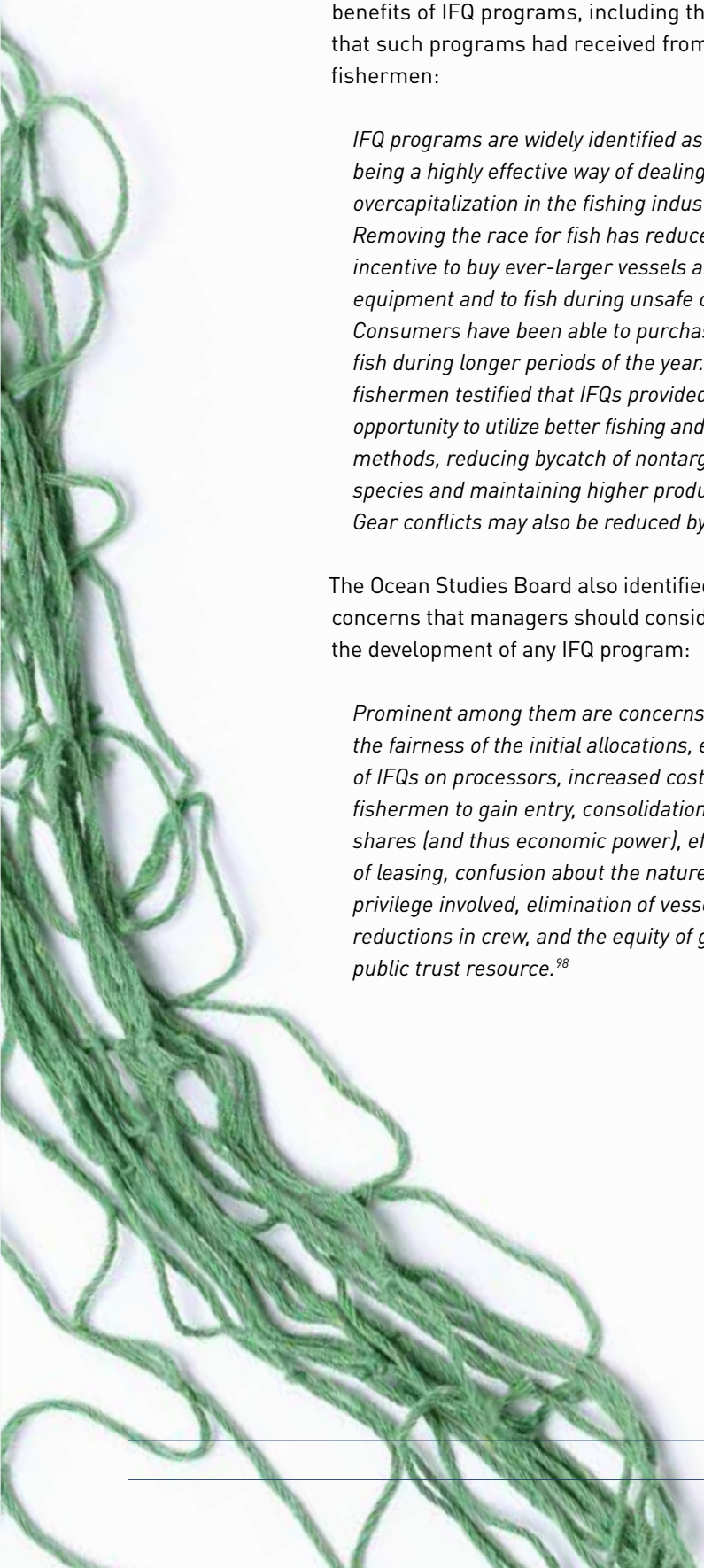
IF THERE IS A COMMON THREAD RUNNING THROUGH THE CATCH SHARE LITERATURE, IT IS THIS: CATCH SHARE PROGRAMS ARE NOT A PANACEA THAT MAGICALLY SOLVE ALL FISHERY MANAGEMENT CHALLENGES. They are, nonetheless, an important tool, and there is a trove of statutory provisions, policy thinking, and academic theory that should guide the design of a catch share program if the goal is to sustainably manage public fishery resources, preserve long-term fishing community access, and support the development of a legitimate management system.[95]

A. NATIONAL POLICY INITIATIVES



As part of the 1996 MSA reauthorization, Congress initiated a national policy review of catch share management systems with a specific focus on programs known as individual fishing quota (IFQ) programs in response to concerns about the privatization of access to domestic fish resources. The Ocean Studies Board of the National Research Council subsequently produced a report in 1999 that extensively analyzed IFQ programs, entitled "Sharing the Fish: Toward a National Policy on Individual Fishing Quotas" ("1999 National Research Council Report").[96] The findings of that report are salient to the review of the sector program.





The Ocean Studies Board pointed to numerous benefits of IFQ programs, including the support that such programs had received from many fishermen:

> *IFQ programs are widely identified as being a highly effective way of dealing with overcapitalization in the fishing industry. Removing the race for fish has reduced the incentive to buy ever-larger vessels and more equipment and to fish during unsafe conditions. Consumers have been able to purchase fresh fish during longer periods of the year. Many fishermen testified that IFQs provided the opportunity to utilize better fishing and handling methods, reducing bycatch of nontargeted species and maintaining higher product quality. Gear conflicts may also be reduced by IFQs.*[97]

The Ocean Studies Board also identified multiple concerns that managers should consider during the development of any IFQ program:

> *Prominent among them are concerns about the fairness of the initial allocations, effects of IFQs on processors, increased costs for new fishermen to gain entry, consolidation of quota shares (and thus economic power), effects of leasing, confusion about the nature of the privilege involved, elimination of vessels and reductions in crew, and the equity of gifting a public trust resource.*[98]

The Ocean Studies Board ultimately endorsed IFQ programs as a useful tool for fisheries management but emphasized the importance of specifying clear goals and objectives for any such program[99] as well as utilizing the best socioeconomic data possible to identify and reduce "unintended or unexpected consequences that may be difficult to reverse or mitigate[:]"[100]

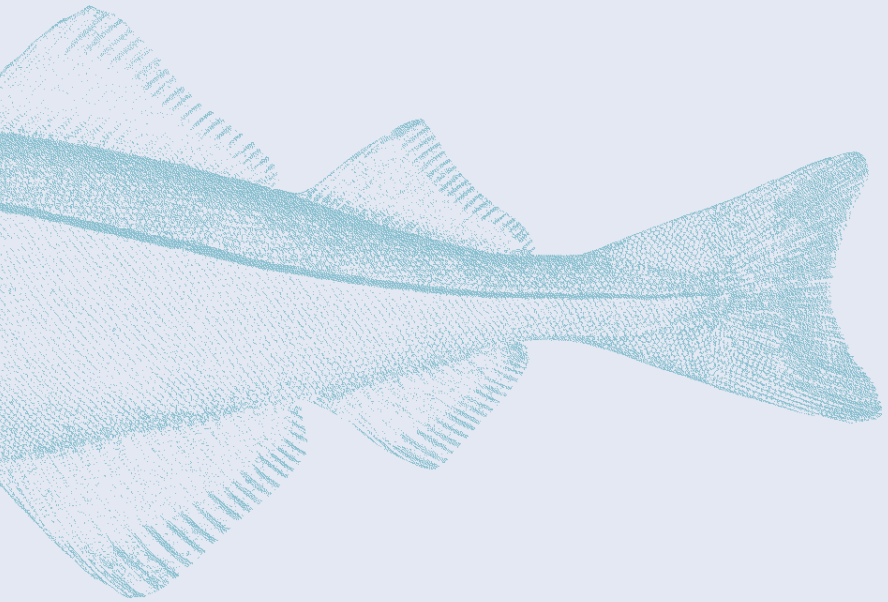
> *Depending on the particular fishery and the design of the IFQ program, it may create a new class of stakeholders — those granted IFQs — with potentially different interests and views than existing shareholders, many of whom may not qualify to hold IFQs despite their previous or current involvement in the fishery.... [R]esulting perceptions of unfairness and inequity may affect the manner in which stakeholders interact with the management process in the future.... The extensive literature and testimony received indicate that insufficient attention and resources have been devoted to socioeconomic impact assessments prior to decisions about IFQs, and to monitoring and evaluating the performance and consequences of IFQ programs once in place.* [101]

A report produced by the U.S. Commission on Ocean Policy in 2005 identified similar benefits of well-designed catch share programs.[102] The report pointed to the positive prospect that "these programs allow fishermen and managers to work cooperatively"[103] but also emphasized the importance of specifying biological, social, and economic goals and undertaking "periodic reviews ... to determine progress in meeting goals."[104]

The conclusions of these two national policy reports significantly influenced Congress's deliberations on the topic of catch share programs during the 2006 MSA reauthorization.

B. LIMITED ACCESS PRIVILEGE PROGRAMS

The terms "catch share" or "catch share program" do not appear in the MSA. Instead, Congress added procedural and substantive provisions to the 2006 MSA reauthorization for limited access privilege programs (LAPPs), a form of catch share program. Congress supported the use of LAPPs in U.S. fisheries as a tool to promote safety, conservation and management (including rebuilding and reducing overcapacity as necessary), and social and economic benefits.[105]



Although the sector program is a type of catch share program, it is not legally deemed to be a LAPP[106] and therefore it is not subject to the MSA's LAPP provisions, a position NMFS maintained firmly throughout the development of Amendment 16. That opinion was challenged by members of the fishing industry and their allies in court.[107] Concluding that it was a "close call[,]" the court upheld NMFS's position:

> *[NMFS's] lead argument is that, under A16's sector program, "no one—not an individual, a vessel, nor a sector—receives" an allocation that meets each element in the statutory definition of a LAPP. The argument has two components: first, sectors (as a whole) do not receive a "Federal permit," 16 U.S.C. § 1802(26)(A), as that term is understood in fishery management; and second, while fishermen and their vessels (individually) do receive a "Federal permit," that alone is not enough because it does not entitle them "to harvest a quantity of fish" for their "exclusive use," which are also essential elements in the definition of a LAPP. Id. These elements, not present in A16's sector program, are required in the statutory definitions of both a LAPP and an IFQ.*[108]

The legal distinction drawn between LAPPs and the sector program was important given the time constraints the Council was under during the development of Amendment 16. While concluding that LAPPs can produce positive benefits, Congress also recognized that LAPPs routinely came with significant and often negative social and economic consequences — some by design, others unintentionally. Accordingly, the 2006 MSA reauthorization was careful to prescribe how managers should approach the design of LAPPs and required certain safeguards to support successful implementation and protect fishing communities.[109]

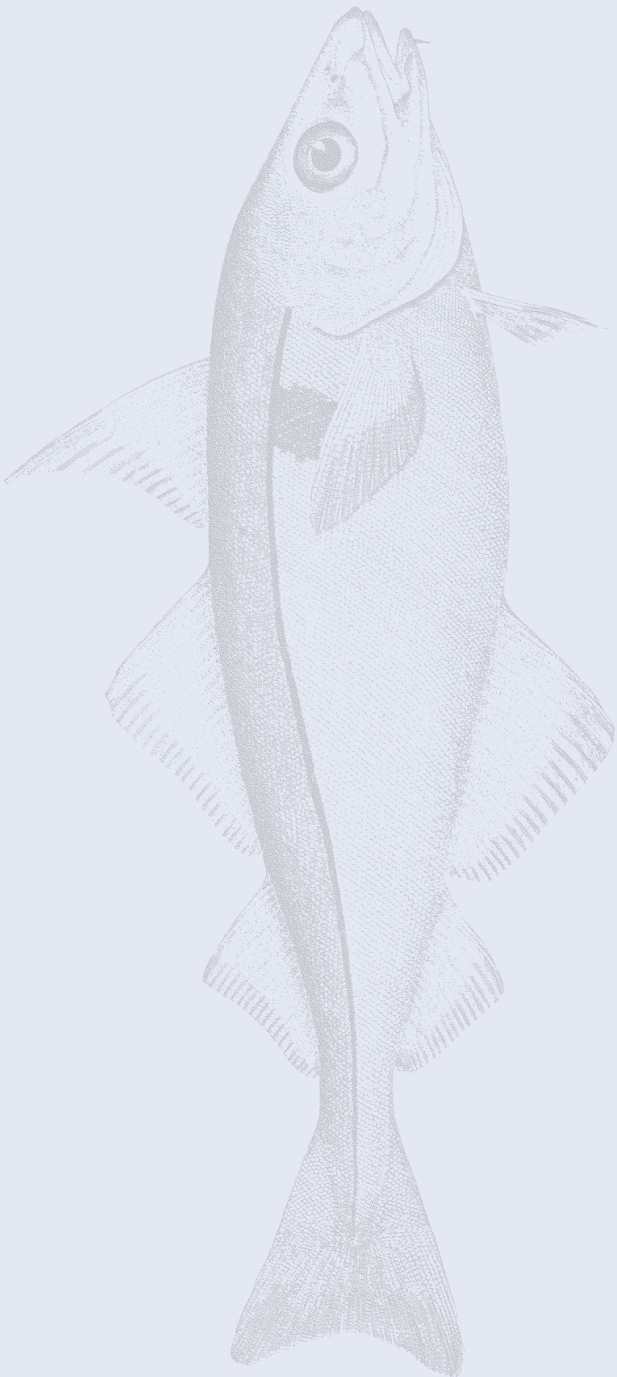
NMFS would not have met its statutory Amendment 16 deadlines if the sector program needed to adhere to those LAPP requirements. In any event, the LAPP provisions do provide a useful framework for evaluating the design of New England's groundfish sector program — even if it is not technically a LAPP.[110]

Four of the LAPP requirements that the sector program was exempted from are of particular relevance. First, LAPPs must "specify the goals of the program."[111] Second, LAPPs must contain "provisions for the regular monitoring and review … of the program, including determining progress in meeting the goals of the program and this Act [the MSA], and any necessary modification of the program to meet those goals…."[112] Third, LAPPs must "include an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems."[113] And fourth, LAPPs must "ensure that limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program by (i) establishing a maximum share … that a limited access privilege holder is permitted to hold, acquire, or use; and (ii) establish any other limitations or measures necessary to prevent an inequitable concentration of limited access privileges[.]"[114]

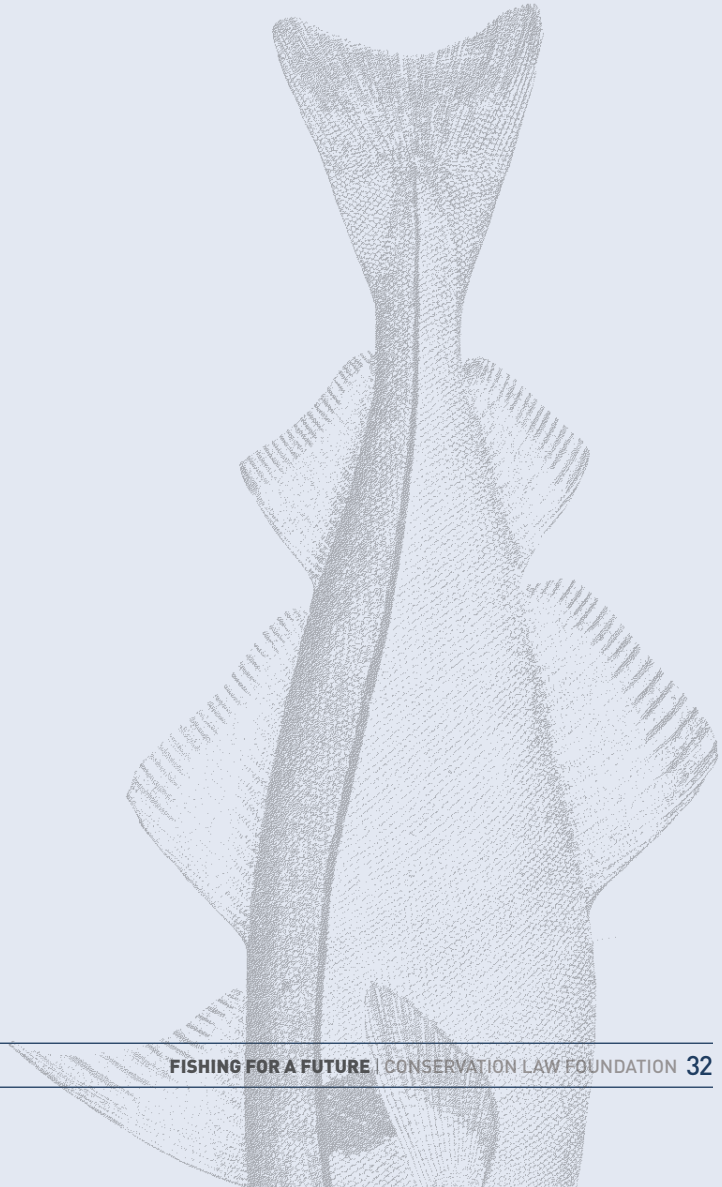
Another Congressional mandate in the new LAPP requirements loomed particularly large over the time-restricted Amendment 16 process. If the Council wanted to submit and NMFS wanted to approve an IFQ program (a type of LAPP) in New England, the program had to first be approved in a referendum by more than two-thirds of the fishery's "eligible permit holders" and other "participants."[115] Congress was explicit that sector allocations, the ACE each sector controls, were not considered an IFQ and therefore not subject to the referendum requirement.[116] In reality, though, given the way that sectors reapportion ACE back to their members based on their individual PSCs, the sector program is little more than a poorly disguised and designed IFQ program,[117] one that is operating without most of the protections required by Congress for such programs.

It is important to acknowledge that the requirements that Congress included in the 2006 MSA reauthorization offered important social and economic guardrails to LAPPs that were intended to support and protect the interests of smaller-scale fishing operations and fishery-dependent communities.[118] Although the sector program's exemption from those guardrails may have been expedient during the Amendment 16 process, in hindsight, it seems likely that a number of the legitimacy and trust issues that exist within the fishery today might have been reduced had the program been developed as a LAPP or if the procedural and substantive protections prescribed for LAPPs had been applied at a later date. Indeed, NMFS has now incorporated many of the LAPP requirements into its oversight of catch share programs through its Catch Share Policy.

C. NOAA'S CATCH SHARE POLICY



NOAA, the parent agency to NMFS, adopted a national Catch Share Policy in 2010.[119] While the Catch Share Policy was adopted too late to influence the development of New England's groundfish sector program in Amendment 16, it is relevant to the last 10 years of program implementation, albeit mostly in the program's breach of many of its most important recommendations.



The policy provides as follows:

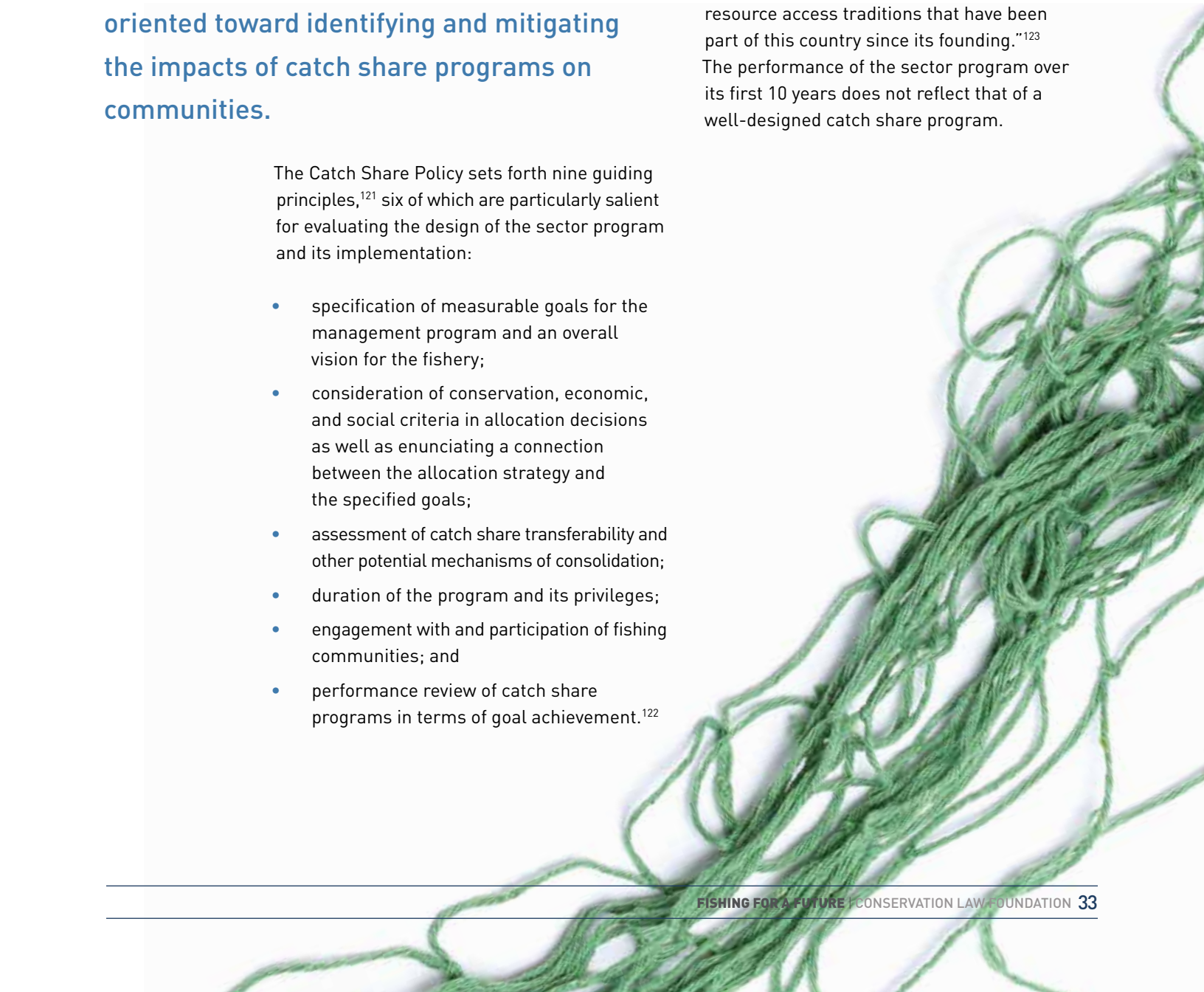
> *To achieve long-term ecological and economic sustainability of the Nation's fishery resources and fishing communities, NOAA encourages the consideration and adoption of catch shares wherever appropriate in fishery management and ecosystem plans and their amendments, and will support the design, implementation and monitoring of catch share programs.*[120]

Overall, the Catch Share Policy is heavily oriented toward identifying and mitigating the impacts of catch share programs on communities.

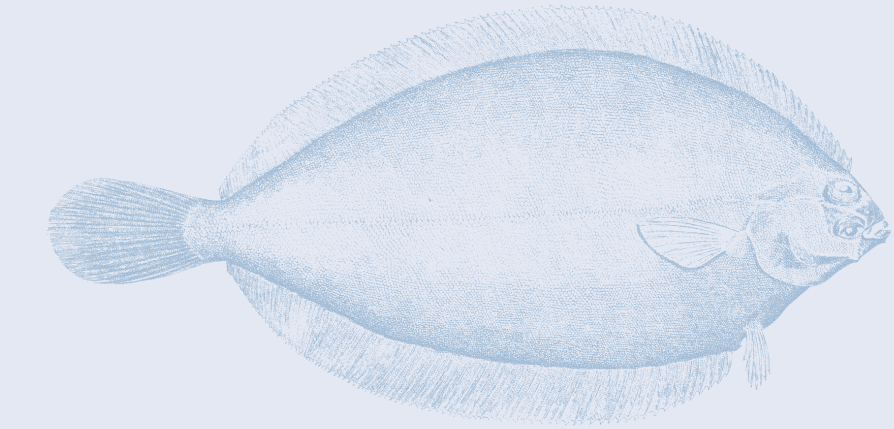
The Catch Share Policy sets forth nine guiding principles,[121] six of which are particularly salient for evaluating the design of the sector program and its implementation:

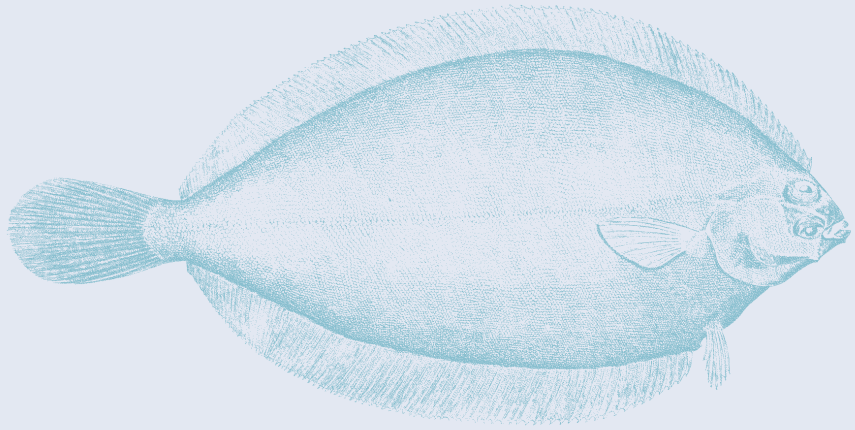
- specification of measurable goals for the management program and an overall vision for the fishery;
- consideration of conservation, economic, and social criteria in allocation decisions as well as enunciating a connection between the allocation strategy and the specified goals;
- assessment of catch share transferability and other potential mechanisms of consolidation;
- duration of the program and its privileges;
- engagement with and participation of fishing communities; and
- performance review of catch share programs in terms of goal achievement.[122]

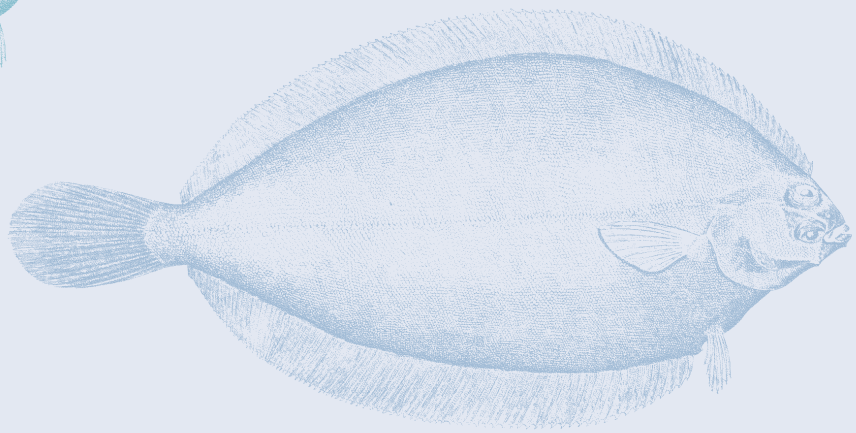
Overall, the Catch Share Policy is heavily oriented toward identifying and mitigating the impacts of catch share programs on communities. The words "community" or "communities" appear 82 times, primarily in the context of proactive engagement, improved socioeconomic conditions, benefits of quota transferability, and measurable objectives. A well-designed catch share program, according to the policy, should "sustain fishermen, communities and vibrant working waterfronts, including the cultural and resource access traditions that have been part of this country since its founding."[123] The performance of the sector program over its first 10 years does not reflect that of a well-designed catch share program.



D. COMPONENTS OF SUCCESSFUL CATCH SHARE MANAGEMENT







Fair and effective enforcement of the regulatory aspects of catch share programs is essential to their design, legitimacy, and durability. Congress recognized this connection,[124] as did the authors of the 1999 National Research Council Report:

> *Councils should design IFQ programs in such a way as to enhance enforcement by (1) ensuring the fairness of program design and (2) using design principles to reduce the incentives to cheat. Programs that are considered fair and desirable by participants are most likely to be respected. Such programs produce higher compliance rates with less necessity for increased enforcement. IFQ programs are more likely to be perceived as fair and desirable if affected stakeholders participate in their creation.*[125]

While one's individual reasons for regulatory compliance (or noncompliance) may vary, a number of academic studies, including several that were directly focused on the New England groundfish fishery, point to several factors that influence an individual's decision to comply with a regulation:

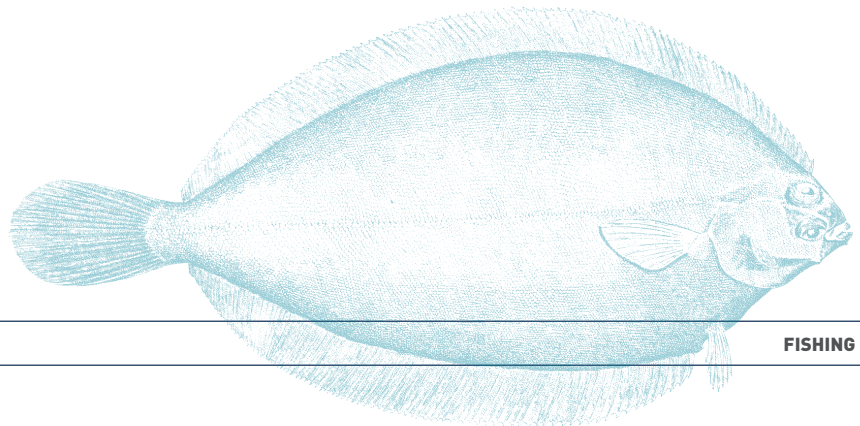
1. the potential economic gains associated with violating a regulation;
2. the penalty or sanction if the violation is detected;
3. the probability of being caught;
4. an individual's sense of moral obligation to comply; and
5. the presence of social or peer/community pressure to comply.[126]

According to the literature, the economic enticements associated with illegal gains could be offset by a stiff penalty and a high likelihood of capture. Even if potential illegal gains might outweigh expected penalties, a sense of moral obligation combined with external pressure to comply from peers and community should support widespread voluntary compliance.[127] However, the strength of an individual's sense of moral obligation and the social pressures to comply depend, in part, upon whether the regulations are perceived as fair, equitable, and effective in the first place.[128] In other words, the willingness to comply can often depend on whether the regulations are viewed as legitimate.

One study that focused on compliance issues in the New England groundfish fishery recommended adopting a "smart compliance policy" to strengthen the basis for achieving voluntary compliance as well as to improve social, economic, and biological outcomes in the fishery.[129] Such an approach is described as having both internal and external components:

- **Internal:** improve voluntary compliance by creating a fisheries management program that fishermen trust, support, and believe in;
- **External:** require stringent reporting and monitoring across the fleet, including routine inspections on vessels and docks, coupled with an enforcement program that targets the frequent and chronic violators with severe penalties including mandatory removal from the fishery.

These components work together – neither is sufficient in and of itself. There may, however, be an inverse correlation between them: The more voluntary compliance is present, the less external enforcement is needed; the less voluntary compliance is present, the more external enforcement is needed. CLF concludes that adopting a smart compliance policy in the sector program could help strengthen the overall management system to meet the challenges ahead.



IV. A TALE OF TWO FISHERIES: WHAT CAN BE LEARNED FROM THE PACIFIC GROUNDFISH FISHERY?

COMPARING TWO FISHERIES, EVEN THOSE WITH SIMILAR ATTRIBUTES, IS AN APPLES-AND-ORANGES AFFAIR. And a fishery viewed from 3,000 miles away inevitably has fewer visible blemishes than a fishery in one's own backyard. Nevertheless, there is value in comparing the New England and Pacific groundfish fisheries because the contrast between these two catch share programs and their outcomes is so stark.[130] In CLF's view, many of the outcomes associated with the relatively thriving Pacific groundfish fishery – rebuilt stocks, strong self-management, accountability, compliance, stewardship, innovation, profitability, and reduced federal enforcement needs – are direct functions of the management system's legitimacy in the eyes of the participating fishermen as well as strong leadership and support from the Pacific Fishery Management Council ("Pacific Council") and NMFS.

Both fisheries transitioned to catch share programs around the same time and faced similar challenges. The Pacific fishery was declared a disaster in 2000 with nine stocks designated overfished in 2002.[131] Efforts by the Pacific Council and the federal government to curb overfishing and remove extra capacity from the fishery helped to some degree, but bycatch of overfished stocks remained a problem.[132,133] The potential for a full "dock-tie-up" closure of the fishery loomed large.

"The cooperative structures they put together did allow them to self-govern, [for example through setting internal] bycatch quotas [and implementing voluntary] rolling hotspot closures for bycatch. The tools are now there to deal with it. Salmon bycatch, whale entanglements — the tools are being developed in the cooperatives. They work hand in hand with agency folks — not as subjects but as partners. And it's less expensive for everyone. … They are now the farmers guarding the chickens not the fox guarding the henhouse."

TRANSCRIPT OF PERSONAL CONVERSATION WITH INDUSTRY REPRESENTATIVE/PACIFIC COUNCIL MEMBER

The Pacific Council launched discussions to create an IFQ program in 2003[134] that eventually resulted in Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan ("Amendment 20/21").[135] Amendment 20/21's goals and objectives from the beginning were clearly focused on developing an IFQ fishery,[136] one that would ultimately have to be consistent with the MSA's new LAPP provisions that New England's groundfish sector program was exempted from. Those closely involved at the time recall extensive participation by industry members in shaping the IFQ program.[137] Many components were directly proposed by the Pacific Council's groundfish advisory panel,[138] and the Pacific Council established numerous other committees to develop specific components of the program, such as an allocation committee and a tracking and monitoring committee, offering increased opportunity for stakeholder engagement.[139] Except for the threshold quota allocation debate, many of the key decisions reportedly came to the Pacific Council for final vote already largely agreed to within the industry.[140]

In addition to stakeholder-driven development, Amendment 20/21 contained numerous elements that contributed to the IFQ program's success and set it apart from New England's sector program. Turning first to the initial quota allocation, fishermen received quota based on their catch history over a fixed time period,[141] which was similar to New England's approach.[142] Notably, though, the initial allocation of quota for overfished species was based on "an individual's need to cover incidental catch under current fishing practices…."[143] This approach was chosen to avoid rewarding those fishermen who had targeted overfished stocks during the qualifying period.[144] The Pacific Council also reserved 10 percent of the quota allocation for adaptive management programs.[145] The New England Council did not adopt either of these approaches.

As a result of the allocation decision and the highly overfished status of several of the stocks in the fishery, Pacific groundfish fishermen received so little quota for certain overfished stocks that one bad tow risked closing the fishery for everyone.[146] The closure risk associated with these low quota stocks drove innovation, communication, and cooperation in the fishery. Some fishermen came together to form "a voluntary mutual insurance pool of quota – known as a risk pool"[147] – designed to mitigate the potential business impacts of low quota stocks for members of the group.[148] Participants pooled their quota for overfished stocks and followed industry-specified cooperative fishing practices and restrictions to avoid the bycatch of low quota stocks. For example, between 2011 and 2015, members voluntarily agreed to 461 temporary fishing area closures.[149] The risk pool "demonstrated that adaptive and cooperative management can result in reduced bycatch of overfished species and increased catch of healthy target species compared to the rest of the IFQ fleet."[150,151]

A second management mandate that was essential to the positive outcomes of the Pacific groundfish IFQ program was the adoption of an industry-funded,[152] 100 percent at-sea and dockside monitoring program for all IFQ vessels.[153] This program allowed the Pacific Council and NMFS "to better monitor mortality of all groundfish species."[154] One fishing industry representative and Pacific Council member that CLF spoke with emphasized the importance of monitoring, arguing that it leveled the playing field between fishermen, built trust between fishermen and regulators, led to better use of quota, and helped force experimentation and technology innovation. He indicated that fishermen were initially displeased that they had to fund the program but now generally accept the program as indispensable.[155]

Third, the Pacific Council established strict limits on excess quota accumulation at the stock level as well as in the aggregate. The stock-level limits ranged from 2.5 percent to 17.7 percent,[156] and the aggregate limit was set at 2.7 percent,[157] which was estimated to be roughly enough to support the operations of two full-time vessels.[158] The Pacific Council also established annual caps on the poundage of fish that any one vessel could catch that ranged from 3.2 to 20 percent of the total stock-level pound limits.[159] This provision was designed to maintain some minimum number of vessels in the fleet. Such limits may have resulted in economic efficiency losses but seem to have successfully produced the desirable community protections that industry and managers were seeking. Quota accumulation limits, whether individual caps or vessel caps, are one of the major differences between the Pacific IFQ program and the New England groundfish sector program, with the latter having no meaningful accumulation limits.[160]

Fourth, the Pacific Council created the Economic Data Collection (EDC) Program,[161] which was "designed to collect, analyze, and report annual data on operating costs, revenue, and other characteristics from all [catch share] program participants.[162] As of 2017, the EDC Program had collected nearly half a million data points, produced sector-specific reports, performance metrics, and created an interactive web-based application ("FISHEyE") where users can explore [publicly] available data."[163]

Finally, it should be emphasized that the Pacific Council did not adopt a one-size-fits-all approach toward managing the several vessel classes in the fishery. The Pacific groundfish fishery was already divided into three limited entry trawl sectors (the shoreside trawl sector, the mothership trawl sector, and the catcher processor sector) that differed in both their

"All the things you are trying to fix with enforcement could be fixed with accountability. That's the bitter pill we realized on the West Coast. What [accountability has] done is that it has rebuilt our stocks. Basically, now people trust their science. We trust it because we work together as partners, with accountability. 100 percent observer coverage and dockside monitors leveled the playing field, built trust, and let [the fishing industry] build better tools to better use their quotas."

TRANSCRIPT OF PERSONAL STATEMENT BY INDUSTRY REPRESENTATIVE/PACIFIC COUNCIL MEMBER

Quota accumulation limits, whether individual caps or vessel caps, are one of the major differences between the Pacific IFQ program and the New England groundfish sector program, with the latter having no meaningful accumulation limits.

internal operations and approaches to fishing. The Pacific Council and NMFS worked with industry in these sectors to develop three separate catch share programs tailored to the three sectors' particular needs and practices. The IFQ program is specific to the shoreside trawl sector.[164]

In contrast, the New England sector program is a "one-size-fits-all" management approach. This approach ignored the very different operating characteristics and requirements of the offshore fishing operations and the more inshore, smaller-scale fishermen.

The IFQ program put the Pacific groundfish fishery back on its feet. In recognition of the fishery's sustainability, the Marine Stewardship Council certified the West Coast groundfish limited entry trawl fishery (comprising the three sectors) as sustainable in 2014 and the Monterey Bay Aquarium's Seafood Watch Program now designates a number of species caught in the fishery as a "best choice" or "good alternative" for consumers.[165] It also appears that historical problems in the fishery are being effectively addressed as bycatch and discards of overfished species have significantly declined[166] due to increased catch accountability, gear innovations, and real-time communication between active vessels. In addition, many long-overfished rockfish species "have now been rebuilt and total quotas have increased dramatically – sometimes twentyfold…."[167] Note that many of these stocks rebuilt decades before scientists had initially forecast.

The fishery has also achieved net economic benefits,[168] although some of those benefits can be attributed to the Pacific Council's intentional consolidation of the fleet. For the inshore IFQ vessels in particular, net economic benefits tripled (average 2011–2015 compared with average 2009–2010),[169] while the number of active vessels decreased by 27 percent.[170] In contrast, the New England groundfish fleet experienced significant declines in groundfish revenues and the number of active vessels declined by 37 percent over the same time period.[171]

The Pacific fishery's catch share program has also reportedly produced enforcement-related benefits. Enforcement personnel and industry appear to have developed positive working relationships.[172] As fishermen became personally accountable under the catch share program, NOAA OLE adjusted its efforts as well, prioritizing communication and education, which led to a decrease in some common violations.[173] OLE staff also took advantage of technology improvements to shift effort away from direct on-the-water enforcement to electronically detecting violations thanks to "access to instantaneous, higher-quality monitoring data to ensure compliance, compared to the management in place before the catch share program."[174] Moreover, anticipated major increases in federal enforcement costs to oversee the program turned out to be unnecessary because of improved self-enforcement by industry.[175]

With the success of the Pacific fishery in mind – and being fully cognizant that CLF may well be viewing this distant fishery through rose-colored glasses – it is time to pivot back to look at the future course of the New England groundfish fishery.

V. MEETING THE CHALLENGES AHEAD

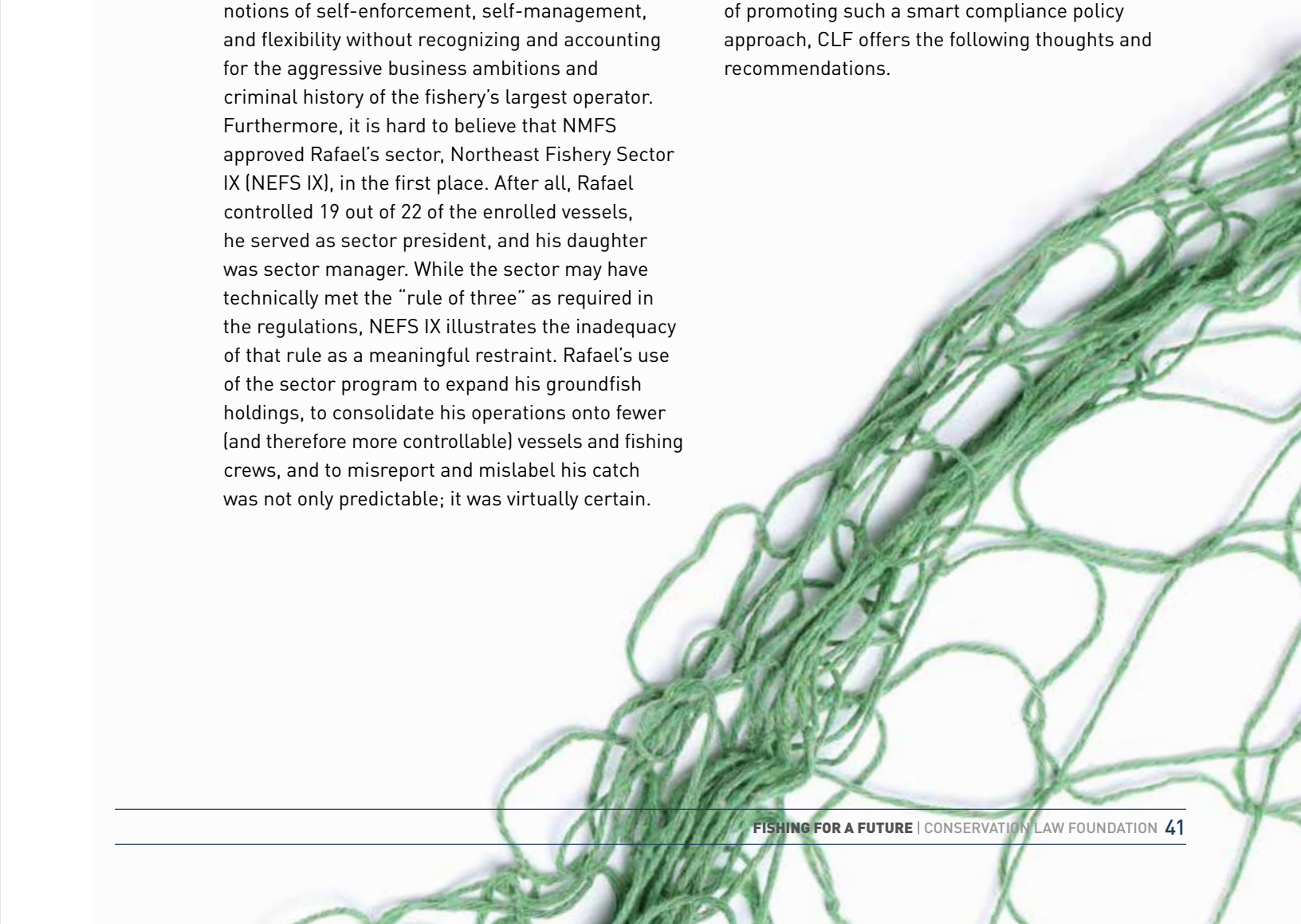
CLF UNDERTOOK THIS PROJECT TO UNDERSTAND IF CARLOS RAFAEL'S ILLICIT CAREER AND EXPLOITATION OF THE SECTOR PROGRAM SIMPLY REFLECTED HIS "PIRATE" NATURE OR WAS A SYMPTOM OF STRUCTURAL PROBLEMS IN THE FISHERY - OR BOTH. Rafael was the chronic rule-breaker that could exist in any industry, but an effective federal enforcement program would have intercepted and dealt with him earlier and more aggressively.

Nonetheless, it must also be acknowledged that the design of the sector program facilitated his efforts to dominate and control the fishery for his personal profit. In the transcript from the IRS sting operation that ultimately brought him down, Rafael outlined his strategy under the sector program:

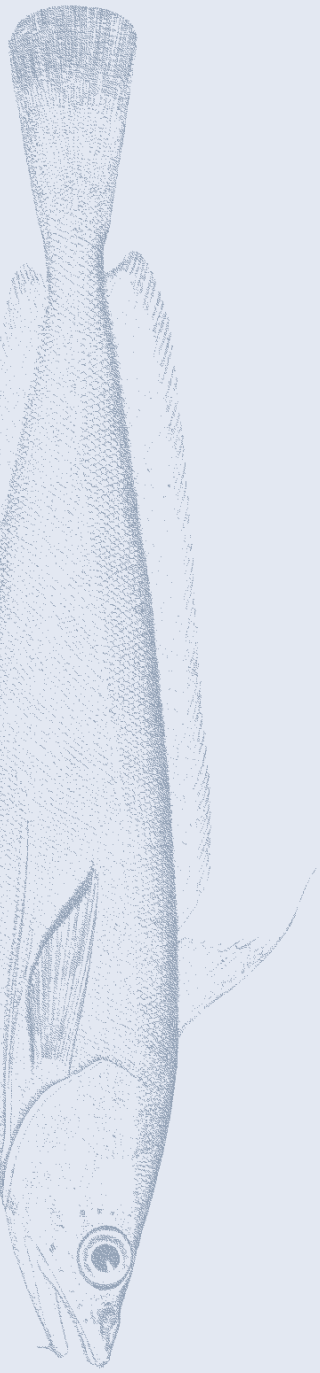
> *So he [a smaller fisherman] doesn't have the money to buy fucking quota [on the secondary market]. So he's fucked either way. He's hanging by his shoestrings. So this is a matter of time for me to pick the rest of these fuckers and just get them out of the picture.... I always had the ambition to get fucking control of the whole fucking thing.*[176]

Given his prior illegal activities and "pirate" disposition, it is surprising in hindsight that NMFS approved a catch share program based on notions of self-enforcement, self-management, and flexibility without recognizing and accounting for the aggressive business ambitions and criminal history of the fishery's largest operator. Furthermore, it is hard to believe that NMFS approved Rafael's sector, Northeast Fishery Sector IX (NEFS IX), in the first place. After all, Rafael controlled 19 out of 22 of the enrolled vessels, he served as sector president, and his daughter was sector manager. While the sector may have technically met the "rule of three" as required in the regulations, NEFS IX illustrates the inadequacy of that rule as a meaningful restraint. Rafael's use of the sector program to expand his groundfish holdings, to consolidate his operations onto fewer (and therefore more controllable) vessels and fishing crews, and to misreport and mislabel his catch was not only predictable; it was virtually certain.

The industry seems to have largely moved on from the Rafael incident, but the sector program's design flaws remain, suggesting that core elements of the program need immediate attention to ensure small-scale and community access to the fishery and to reduce the risks of another "Rafael" emerging in the fishery. A smart compliance approach calls for careful observance of the LAPP guardrails, NOAA's Catch Share Policy, and social science literature. The objective should be to move fishery management toward something fishermen perceive as legitimate, i.e., an alignment with industry goals, fairness in practice, and trusted by a majority of participants.[177] Such a management approach would also require an increased federal enforcement presence in the region with stronger, more effective permit and licensing sanctions for chronic or serious violators. In the spirit of promoting such a smart compliance policy approach, CLF offers the following thoughts and recommendations.



A. INDUSTRY SHOULD DEVELOP A SHARED VISION FOR ITS FUTURE



The most fundamental and consistent recommendation in the catch share design guidance literature is the need for *specific* and *measurable* program goals and objectives. Ideally, these goals and objectives should also align with those of the fishery participants. Because goals and objectives were never established for the sector program,[178] its performance cannot be assessed and improved as NOAA's Catch Share Policy requires. Moreover, without measurable goals and objectives designed to protect and ensure continued access to the fishery for historically involved communities, the inexorable market forces will continue, and the most capital- and catch-intensive fishing operations will continue to disproportionately dominate the fishery. It is fair to say that this was not the intent of the Council or NMFS when they developed and implemented the sector program. Moreover, it is inconsistent with the MSA's National Standards 4 and 8, which require fair and equitable distribution of fishing privileges and the promotion of the sustained participation of the region's diverse fishing communities.[179]

Many of the problems that existed when the sector program was launched – chronically overfished stocks, unchecked vessel consolidation, loss of the smaller historical groundfish ports, lack of trust in the science, and disenfranchised fishermen – still exist today. In contrast, the Pacific groundfish fishery overcame the very real threat of a multi-year fishery closure and rebuilt fish stocks through the fleet's willingness to cooperate, innovate, be transparent, and hold itself fully accountable. And, in response to its five-year catch review, the Pacific Council adjusted elements of the program design that were not accomplishing their purposes or were no longer relevant.[180] Mirroring the success of that fishery, the New England groundfish fishery should develop a shared vision for its future, establish specific and measurable goals and objectives to achieve that vision, and push the Council and NMFS to develop and manage a program that reflects those goals and uses current economic and sociocultural data.

Reaching industry consensus on goals and objectives through a fair and inclusive process – and here we define "industry" broadly to include owner- and non-owner captains, mates, deckhands, fishery infrastructure interests, and representatives of historic groundfish ports – could result in a management system that better promotes voluntary compliance. Indeed, the authors of the smart compliance policy approach make a categorical statement on this point:

> *[A] critical and necessary condition for successful fishery management is fishers' support for the program. The evidence is extensive and persuasive, originating from several countries for a variety of fishery settings. The evidence is provided by frontline fishery managers, enforcement authorities, industry spokesman [sic] and field researchers. We know that without widespread industry support, a fishery management plan is doomed.*[181]

Rather than wait to react to whatever the Council or NMFS may propose, nothing procedurally prevents the industry from initiating such an endeavor. Time and resources are limited in most, if not all, New England groundfish operations, but one way to establish legitimacy and trust in the management system - seemingly a necessary condition of a successful, stable fishery - is for the industry to identify consensus-based goals and objectives to help guide the system's design. Whether the industry, either as a whole or in the form of its various components, is inclined to or has the capacity, resources, and energy to take up the challenge is another question.

Such an effort would be a difficult and resource-intensive task at the best of times and particularly now when resources in the fishery are stretched thin. And not all fishermen see the same issues with the fishery. Fishermen's comments submitted during the 2021 Catch Share Review reveal the varied perspectives of the fishery, including the condition of the resource, fishing behavior at sea, fair and equitable access to the resource, whether the sector program is working and emerging challenges such as climate change.[182]

At the same time, such an effort is not an impossible prospect. GMRI documented "[a] passionate commitment to the industry [that] permeated all of [their] meetings and came from industry members and their families, along with their neighbors, suppliers, community leaders, and political representatives. All were there [at the port meetings] because they see a future for the industry despite the list of hurdles it now faces."[183]

Moreover, a diversity of opinions and perspectives within the fishery does not necessarily reflect a dysfunctional fishery. It does reflect, in part, a lack of common understanding of the problems facing the different segments of the fishery and differences around the goals and objectives for the sector program. Industry must work through these issues if there is ever to be a shared vision for the future.

The fishery also remains culturally and economically diverse, which is both its strength and its weakness. The contrasts between the interests and motivations of a multi-fishery, multi-vessel, vertically integrated Blue Harvest Fisheries-scale operation and a single-fishery, owner-operator dayboat fisherman out of Port Clyde, Maine, for example, are stark. Compromise achieved through face-to-face conversations, whether among like-minded groups within the fishery or by the larger fleet directly, is necessary if common ground is to be identified and mapped out.

The industry is not without recourse or dependent on the Council or NMFS to build consensus around the challenges it faces. With adequate resources and support, the industry, or components of it, could run a structured process to reach consensus on what success looks like, how it will be accomplished and measured, and how it could be advanced through the Council process. CLF encourages the industry to do so because it is difficult, if not impossible, to ensure fleet diversity and the continued participation of traditional coastal communities in the absence of such an effort.

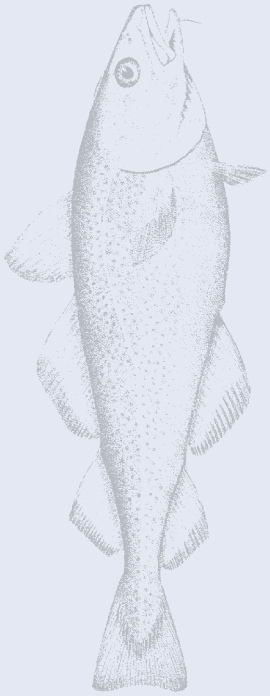
Recommendations

1. Industry — broadly defined to include owner- and non-owner captains, mates, deckhands, and representatives of historic groundfish ports and infrastructure in those ports — should work to reach broad consensus on (1) the most pressing short-term and long-term problems facing the fishery, (2) a clear vision for the fishery's future that addresses those problems, and (3) specific and measurable goals and objectives to achieve that vision. If consensus can be reached, the industry should bring that consensus into the Council process for it to be further developed consistent with the MSA, which would provide opportunity for broader stakeholder scrutiny and review.

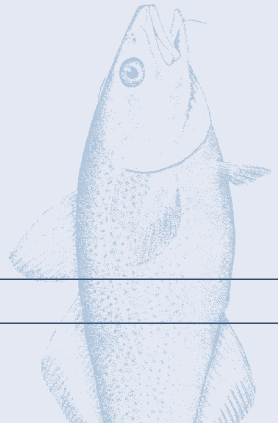
2. NMFS should play a leadership role in facilitating the development of this broad consensus. If the industry does not have the capacity or willingness to convene such an effort or if the Council fails to prioritize action on any industry consensus, NMFS should either direct the Council to develop specific and measurable goals and objectives for the sector program that meet the requirements of National Standards 4 and 8 and the Catch Share Policy or initiate an action to develop such goals and objectives itself.

B. INDUSTRY AND MANAGERS SHOULD ADDRESS OUTSTANDING QUOTA ALLOCATION AND ACCUMULATION ISSUES

One of the most consequential, and in some quarters embittering, decisions in the development of the sector program was how "quota" – or PSC – was allocated. In Amendment 16, the Council adopted a formula that allocated quota based solely on the groundfish landings associated with each permit between 1996 and 2006[184] and locked that formula into place for an indeterminate time: "It is the Council's intent that catch history for all groundfish fishing vessels (including both the recreational and commercial components of the fishery) is essentially frozen at implementation of Amendment 16."[185]



However, there is no support for the notion that the fishing years 1996–2006 were "golden years" for the fishery that should be preserved for all time.[186] A 2010 survey of roughly half of the active groundfish fishermen (both sector program and common pool participants) found that 80 percent of them thought that the allocation process had been unfair or very unfair; only 11 percent responded that the allocations were fair or very fair.[187] From the informal interviews CLF conducted for this project, the impact of this decision continues to trouble many in the fishery.



1. QUOTA ALLOCATION ISSUES

It appears that the Amendment 16 quota allocation formula negatively impacted those fishermen in particular who, during the qualifying time period, were constrained to fish closer to shore, were seasonally shut out of the fishery by spawning closures, or followed NMFS's advice to avoid overfished groundfish stocks. As a result, those fishermen received lower or no allocations of certain stocks regardless of their historic involvement in the fishery.[188] The allocation formula also fundamentally changed the monetary value of certain groundfish permits because "[t]he [days-at-sea] associated with a permit were no longer important. Instead the catch history tied to a permit determine[d] its value...."[189] Based on feedback collected during the 2019 port meetings with the industry, GMRI reported:

> *We heard at virtually every port meeting that the switch from [days-at-sea] to ACE upended the value of permits. An immediate impact was that some recently purchased permits, valued based on [days-at-sea], became almost worthless if those [days] had been leased to another permit, so the purchased permit did not accrue the catch history associated with those days. It appears that this impact was felt across the industry, with permit holders in all states with vessels of all sizes finding themselves with expensive, yet almost worthless permits.*[190]

The resentment still harbored by those fishermen who were "allocation losers" under the sector program is understandable, particularly among those who intentionally reduced their catch at a critical time. It is fair to say that those fishermen anticipated being able to reap the long-term economic benefits of rebuilt stocks; few probably imagined that their decision would lock them out of the fishery.

A 2010 survey of roughly half of the active groundfish fishermen (both sector program and common pool participants) found that 80 percent of them thought that the allocation process had been unfair or very unfair.

The impacts of the original allocation formula are important because the inequities, perceived or real, will only compound over time. Current quota holders now lay claim to an established percentage of the stocks they fished during the 1996–2006 qualifying period – even if fish populations rebuild. For example, under the current approach, a fisherman allocated 5 percent of the Gulf of Maine cod quota when the sector program was implemented currently expects to be allocated 5 percent of the Gulf of Maine cod quota in the future even if cod populations fully rebuild. If and when overfished groundfish stocks such as Gulf of Maine cod rebuild, however, that rebuilding will be the result of a multitude of factors and public investments,[191] not solely any catch limitations or restrictions that an individual fisherman has been subjected to.

Moreover, the original allocation formula only accounted for permit owners. It did not consider allocating quota to non-owner captains or crew who have a legitimate economic and equity stake in the fishing history associated with a particular permit and the fishery overall;[192] nor did it consider the economic challenges facing new entrants into the fishery, a significant strategic issue in a fishery with such an aging membership.[193] Current permit owners are inequitably allowed to exert exclusive power over access to the fishery for the indefinite future.

Finally, there is no attempt to offset the tendency of unrestrained catch share programs to increasingly concentrate fishing access rights in larger ports. Geographic limits on quota or permit transfers, for example, could help prevent disenfranchisement of the smaller, more remote and capital-restricted ports over time.[194] The 1999 National Research Council Report discussed this issue:

> *If the desire is to promote an owner-operated fishery and prevent absentee ownership, or to conserve geographic or other structural features of the industry, it may be necessary to restrict long-term transfers of quota shares to bona fide fishermen or to prohibit transfers away from certain areas or between different vessel categories.*[195]

Other potential strategies include creating community quota programs, imposing owner/operator rules, or setting vessel limits like those in the Pacific.

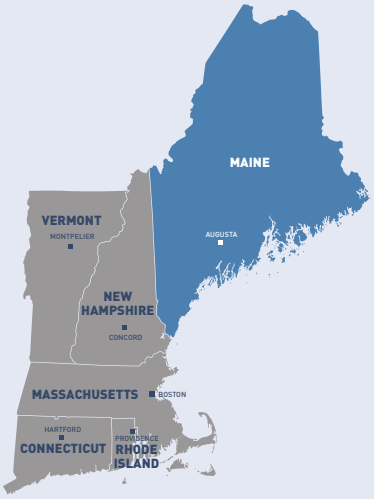
Restricting permits geographically could be a significant program element in the Gulf of Maine fisheries. Many of those smaller, remote coastal communities, such as Port Clyde, Maine, are culturally and economically tied to the sea and historically tied to groundfishing but are losing or have lost access to the fishery. From 30 active groundfish trawlers historically in Port Clyde, only one year-round trawling operation remains.[196]

The sector program is not solely responsible for the decline of Maine's historic groundfish fishery. The poor condition of the groundfish resource and the expansion of the lucrative lobster fishery have also contributed to the decline in recent years. Nonetheless, the unrestricted movement of permits throughout the region became a major issue for many in the fishery with respect to the resolution of what to do with Rafael's permits. Rafael had purchased permits from Maine and elsewhere, and many argued that those permits should have been returned to their original homeport states when Rafael's fleet was broken up.[197] One editorial in a local paper put it this way:

> *[H]is assigned share of the annual catch should be distributed among the rest of the fleet, giving the fishing community a chance to earn back some of what [Rafael] effectively stole from them.*[198]

The Council and NMFS should work closely with industry to revisit these collective issues in an inclusive manner and satisfy National Standards 4 and 8.

Allocation is a complex topic that is fraught with unintended consequences and political challenges. Addressing those consequences more than ten years after the fact is even more challenging. Nevertheless, a fisherman's allocation under the sector program is not a permanent entitlement to fish and should not be treated as such. Indeed, as the litigation challenging Amendment 16 held, a PSC is not even a federal permit to harvest a quantity of fish. It is just a representation of catch during a particular interval of time that serves as the basis for how much fish can be harvested when enrolled in a sector.[200] The quota allocation process should be revisited to address historic inequities, ensure fair and equitable access to the resource, and achieve broader strategic objectives (use of quota to fund cooperative research, new entrants programs, and risk pools).



The groundfish fishery declines in Maine are striking.

In 2000, groundfish landings were 7 percent of commercial fish landings in Maine by weight and 5 percent by value. In 2010, Maine groundfish landings comprised 0.014 percent of commercial fish landings by weight and 0.01 percent by value. By 2019, groundfish landings had shrunk to 0.007 percent of the total commercial fish landings in Maine by weight and less than 0.006 percent by value. Cod landings in Maine in 2010 were 369 metric tons, valued at $1.62 million. In 2020, cod landings in Maine were 27 metric tons, valued at roughly $150,000.[199]

2. EXCESSIVE SHARE ACCUMULATIONS

Key to establishing fair allocation and access to the fishery resource is the implementation of rules that prohibit the accumulation of excessive shares. Two decisions in Amendment 16 weakened the pre-existing sector rules in this regard. First, the Amendment 16 sector program was originally implemented without any quota accumulation limits, despite widespread concern from the industry and others about fleet consolidation and the clarion warnings in virtually all the academic and policy literature on catch share programs.[201] Also, the prior prohibition against "permit stacking" (where one owner moves multiple permits from multiple vessels under common ownership to fewer vessels) was eliminated. At the time, NMFS argued that the National Standard 4 requirements with respect to ensuring fair and equitable fishing privilege allocations did not apply to the groundfish sector program because "Amendment 16 does not directly or deliberately allocate any fishing privileges."[202]

The absence of design features to address these issues directly benefited the larger, multivessel operations such as Rafael's. Without rules against accumulation of excessive shares, he was legally able to purchase groundfish permits throughout the New England region, move them to New Bedford to consolidate effort on fewer vessels, and significantly reduce operating costs such as crew and captain expenses, shoreside vessel and gear repairs, and overhead. The absence of any limits further heightened his competitive advantages over smaller fishing operations.

Some six years after Amendment 16, the Council revisited consolidation and fleet diversity concerns in Amendment 18 to the Northeast Multispecies FMP ("Amendment 18"). Notably, the 1999 National Research Council Report had thoroughly explored issues relating to the accumulation of excessive shares as well as quota transferability,[203] stating that they "must be considered in the context of balancing two opposing goals: economic efficiency and social equity."[204] Amendment 18 had goals and objectives that were intended to address both objectives.[205]

The Council, however, ultimately ignored its own goals and objectives in Amendment 18 and exclusively focused on avoiding accumulations that would allow monopolistic "market power." Even then, the Council adopted, and NMFS approved, an accumulation limit that was substantially higher than what their own expert consultants had advised.[206] Permit accumulations were limited to 5 percent of all issued permits,[207] and quota accumulations were limited to 15 percent of the allocated quota for all the groundfish stocks in the aggregate. The consultants had advised a per-stock limit such as in the Pacific fishery.[208] In its approval of Amendment 18, NMFS "encourage[d] the Council to continue developing additional management measures that mitigate fleet consolidation and promote fleet diversity"[209] despite the fact that Amendment 18 was specifically intended to be the management vehicle to address such concerns.

Numerous stakeholders on both sides of the debate criticized Amendment 18 for not meeting its goals or the MSA's national standards. The adopted accumulation limits did nothing to promote fleet diversity, nor did they prevent the accumulation of excessive shares.[210] The failure to set quota caps at a stock level rather than at a fishery level resulted in a system that rewards aggressive behavior by those with the deepest pockets and exacerbates the consolidation forces that exist in any catch share program.[211]

3. SECTOR ACE ACCUMULATION

Amendment 18 also failed to limit the amount of ACE one sector, or a group of sectors working together, could accumulate through the individual PSCs contributed by their individual members. In response to comments on the final rule, NMFS stated: "Available analyses show that there is no need for an excessive share cap on sector-affiliated ACE because the sectors themselves do not control how member vessels use ACE."[212] This explanation flies in the face of the agency's earlier position that ACE is controlled by and only available to sector management.[213] It also ignores the fact that sectors have been allowed to include "rights of first refusal" and sometimes even "rights of second refusal" in their operating plans for members selling their permits.[214] These provisions could allow certain sectors to accumulate significant portions of ACE over time, leading to anti-competitive, "market power" outcomes.

At the time Amendment 18 was developed, it is not clear why more attention was not given to the interdependence of many of the separate sectors. For example, the three Sustainable Harvest Sectors are managed in common, and there are significant management interconnections between the ten Northeast Fishery Sectors. The absence of transparency of the leasing and permit sales markets, the lack of ready public access to annual sector operating reports, and the significant amount of quota in the form of ACE that some of these coordinated sectors control is an issue that NMFS needs to examine more carefully.

Total Percentage of Fishing Year 2019 PSC controlled by the 10 Northeast Fishery Sectors (NEFS) is Excessive

	TOTAL NEFS PSC
GB cod	47%
GOM cod	64%
GB haddock	59%
GOM haddock	51%
GB YT flounder	81%
SNE/MA YT flounder	69%
CC/GOM YT flounder	72%
Plaice	50%
Witch flounder	56%
GB winter flounder	75%
GOM winter flounder	65%
SNE/MA winter flounder	60%
Redfish	46%
White hake	37%
Pollock	46%

KEY

GB	GEORGES BANK
GOM	GULF OF MAINE
YT	YELLOWTAIL
SNE	SOUTHERN NEW ENGLAND
MA	MID-ATLANTIC
CC	CAPE COD

POTENTIAL SECTOR CONTRIBUTION (PSC) BY MRI," NOAA, NOVEMBER 15, 2019, HTTPS://WWW.GREATERATLANTIC.FISHERIES.NOAA.GOV/RO/FSO/REPORTS/SECTORS/PSC/PSC_PERCENT_BY_MRI.HTML.

4. QUOTA LEASING

Another related issue is the practice of quota leasing, where a sector member is allowed to lease their quota to another fisherman (either within or outside of their sector) rather than actively fish that quota. Leasing is a hot button issue in many U.S. and international catch share programs because it can produce undesirable social, economic, and equity outcomes even in the best of programs.[215] As two academics studying Alaska catch share fisheries observed:

> *[L]easing in IFQ programs … can allow inactive fishermen to retain their shares and profit from the harvest of their IFQ without incurring the physical or financial risks of fishing, which can contribute to quota share prices becoming prohibitively expensive for the next generation of fishermen. … Leasing can also contribute to the emergence of a class of absentee shareholders in the fishery, due to the entrance of investment speculators and to fishermen relying on leasing arrangements rather than selling their shares when they are no longer willing or able to fish their IFQ themselves. … Absentee shareholders may also have fewer ties to coastal communities than active fishermen, resulting in a transfer of the benefits from fishing privileges out of these communities. … [I]mplementation of a catch share or limited access program was associated with the migration of fishing privileges away from rural communities towards urban centers. … [D]istributional and equity issues may be exacerbated in the fishery with geographic lines dividing lessors from lessees. [A]bsentee quota ownership … could be preventing those profits from being reinvested in the halibut and sablefish fisheries themselves, potentially contributing to the continued use of older vessels and gear and resulting decreases in harvesting efficiency and overall safety.*[216]

Currently, there are no quantity or time limits on leasing quota in the sector program. An entity – whether a fisherman who is no longer actively fishing or a speculative investor who has no active connections to the fishing business – can control access to significant portions of this public resource indefinitely without ever having to actually fish, contrary to Congressional intent.[217] The possibility of a substantial non-fishing leasing category of permit holder was never fully anticipated or debated by the Council and remains a critical issue to resolve, one with particular relevance given the entry of Blue Harvest Fisheries. Other fisheries have taken actions to restrict such outcomes, such as those that have adopted owner-captain requirements[218] or owner-operator requirements.[219] Such rules should be considered in the New England groundfish fishery.

Furthermore, since federal fisheries are based on the harvest and sale of public resources, there should be a transparent lease exchange mechanism that prevents price manipulation and provides fair and equitable access to lease offers and prices for all fishermen. Indeed, providing such market information was a role that NMFS assigned to itself, and the agency should follow up on this commitment: "NMFS can contribute to this effort by establishing a source of authoritative market transaction information on leases and sales and establishing an exclusive central registry system for limited access system permits and privileges."[220] A recent analysis of a number of LAPP fisheries concluded that the absence of accurate and publicly available real-time data and a centralized market for quota and share transfer presents another barrier to entry to new entrants and small-scale fishermen.[221]

5. MOVING FORWARD

These conversations and resulting decisions are difficult, which is undoubtedly why NMFS, the Council, and NGOs typically avoid them. NOAA's Catch Share Policy characterizes catch allocation as "among the most challenging policy decisions for the [c]ouncils."[222] But the Catch Share Policy also advises councils "to consider a broad range of participation criteria to ensure the most fair and equitable catch share distribution for their given circumstances."[223] The 1999 National Research Council Report also noted fairness of initial allocations as a prominent concern for consideration in developing catch share programs because of the potential for major socioeconomic impacts of allocation.

Fishermen and others expressed their concerns about allocation and fleet consolidation many times during the development of Amendments 16 and 18, and most of those concerns were not sufficiently addressed.[224] Of course, it is important to note that even if the Council had not been under a pressing statutory deadline for the implementation of Amendment 16, the issues related to fleet consolidation could not have been carefully analyzed because neither the Council nor NMFS developed the detailed social science data and analyses that would have revealed the true impacts of their decisions. The lack of such granular community data continues to impose significant limitations on management.

In any event, past omissions should not justify avoiding these issues now, however controversial. Allocations, ACE limits, consolidation, permit duration limits, accumulation of excessive shares, and leasing need to be addressed directly and transparently to preserve the historically diverse fishery and the regional fishing communities that depend upon it. At this point in time, with 10 years of experience with the sector program, the question of "how is the catch actually being shared?"[225] must be confronted and addressed.

Recommendations

1. NMFS should conduct a management strategy evaluation that engages diverse participation from fishing communities and other stakeholders to analyze outstanding quota related issues, including allocation inequities, leasing, transferability, new entrants, accumulation, and creation of risk pools.

2. As part of the management strategy evaluation, stakeholders should consider options for an "excessive share" approach that promotes a diverse fishery consistent with the requirements of National Standards 4 and 8. In the absence of such an approach, NMFS should direct the Council to initiate such an action.

3. NMFS should create a centralized, transparent public exchange mechanism for providing "authoritative market transaction information on [quota] lease and sales."[226]

C. NMFS SHOULD DEVELOP A COMPREHENSIVE PARTICIPATORY GROUNDFISH RESEARCH PROGRAM

Many fishermen are fundamentally skeptical about the accuracy and timeliness of the science used to inform fisheries management. The 2018 Council Program Review ("Council Program Review") drew on a panel of national fisheries experts to "learn from mistakes and build on successes[.]"[227] The review provided the following insights:

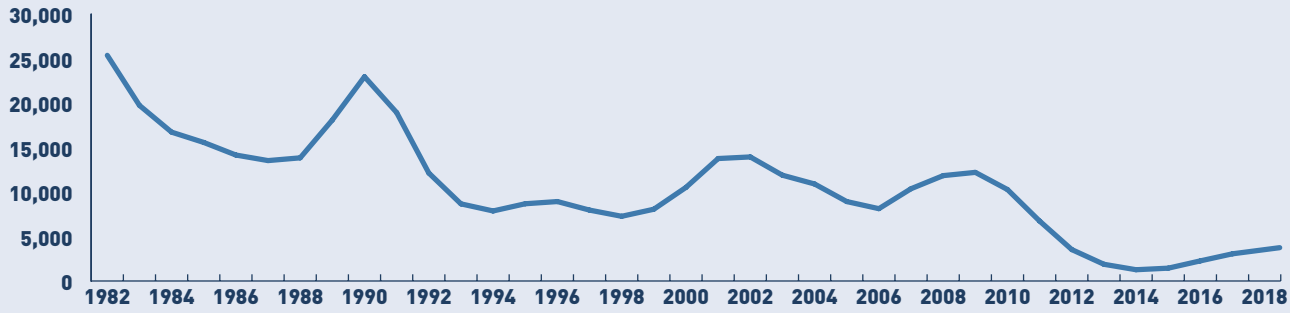
> *Contributors felt that there was a disconnect between stock assessment outputs and stakeholders' on-the-water experience. Contributors perceived that some stocks, such as cod and yellowtail flounder, are more abundant than stock assessments and catch limits suggest and felt that there is no way for the industry to demonstrate and communicate their experience and observations. … Contributors felt that science is not leading to positive outcomes. They describe a disconnect between science, management actions, and outcomes that perpetuates mistrust. … Many felt … there is little interest or support in collaboration from NMFS, and lack of respect for the industry's motives and desire to improve the science.*[228]

Even those fishermen who participate in the existing cooperative research programs express frustration that they do not see their research results being applied to management decisions.[229] Industry leaders highlighted the science issue during the 2021 Catch Share Review: "no management system can compensate for bad science[,]"[230] and "[u]ntil the stock assessment process and strategies for estimating abundance are successfully addressed intelligently, methodically, and without bias — management will fail…."[231] Such sentiments have existed in this fishery for decades without resolution.

This issue may well be less about the empirical accuracy of the Science Center's assessments and more about whether fishermen feel heard in the scientific process. Collaborative efforts to address industry concerns about flawed federal trawl surveys, such as the Massachusetts industry-based survey of Gulf of Maine cod,[232] strongly corroborated the federal survey results. Science Center population assessment scientists also started formal outreach programs to fishing communities in conjunction with their scheduled assessment work. These efforts to directly interact with fishermen are important but do not appear to have shifted the fishing community's distrust in the science that is used in management.

The debate about the accuracy of the science has been at the heart of the groundfish industry's grievances with management for decades, and it remains one of the most important and central challenges in this fishery. While the assessment science may be accurate, if fishermen do not believe in its results, they will not believe in or actively support any management system based on that science. It seems self-evident that improving the relationships between fishermen and fishery scientists is fundamental to this fishery's future, especially in the face of the emerging

Gulf of Maine Cod Spawning Stock Biomass (mt) from 1982–2018



NEFSC, 2019, GULF OF MAINE ATLANTIC COD 2019 ASSESSMENT UPDATE REPORT SUPPLEMENTAL TABLES (DRAFT), 32.

analytical and management challenges associated with rapid ecological shifts occurring in the ocean due to climate change.

Everyone seems to agree that reducing industry's distrust of fisheries science is fundamental to increasing trust in the management process. This was one of the top priority recommendations from the 2018 Council Program Review, which the Council fully recognized: "In several fisheries, lack of trust appears largely the result of a discrepancy between assessment results and fishermen's observations. Additional effort needs to be expended to reconcile difference."[233]

The director of the Science Center provided his candid perspective on the significance of the problem in a recent journal article. He observed that fisheries scientists and managers tend to stick with familiar topics and analytical tools, but he also recognized fishermen as "knowledge experts" whom he wants to "encourage and engage in participatory science" while "respect[ing] all perspectives[.]"[234] His goals for improving fisheries science to ultimately improve management appear to align well with those of the industry and with the objectives of a smart compliance policy approach: "I am arguing for participatory fisheries science to contribute to participatory fisheries management."[235] It is hard to imagine a better opening for making progress on this long-intractable problem of trust in the sciences than to have such a spirit of cooperation coming from the head of the Science Center.

Structured participatory fisheries science elsewhere has demonstrated the multiple benefits of such programs. The Norwegian Reference Fleet is a prime example of cooperation between fishermen and scientists to achieve multiple objectives. It consists of 10 coastal fishing vessels (25–50 feet in length) and 15 larger high-seas vessels that use a full range of gears. Participants are trained by scientists and are "paid" from a small quota set aside to provide extensive, real-time biological and oceanographic data to the Norwegian Institute for Marine Research. These data are used in stock assessments, for purposes of dynamically managing the fishery, and myriad other purposes. One review of the Norwegian

Reference Fleet reached the following conclusions: "[S]uch trust-based cooperation between fisherman and scientist seems to reduce controversies and rather build a common understanding and ownership of improved stock assessments and fisheries management."[236] The key function and design of the Norwegian Reference Fleet seems to be the close and highly interactive connections between the Norwegian fleet, scientists, and managers.

Of course, funding and staff resources are limiting factors in these situations. Nevertheless, having fishing vessels collecting real-time data on catch, fish biology, marine mammal sightings, and oceanographic conditions, under full quality assurance/ quality control protocols, would allow for improved dynamic management, improved understanding of climate change impacts and, ultimately, more faith in science and trust in management.

Recommendations

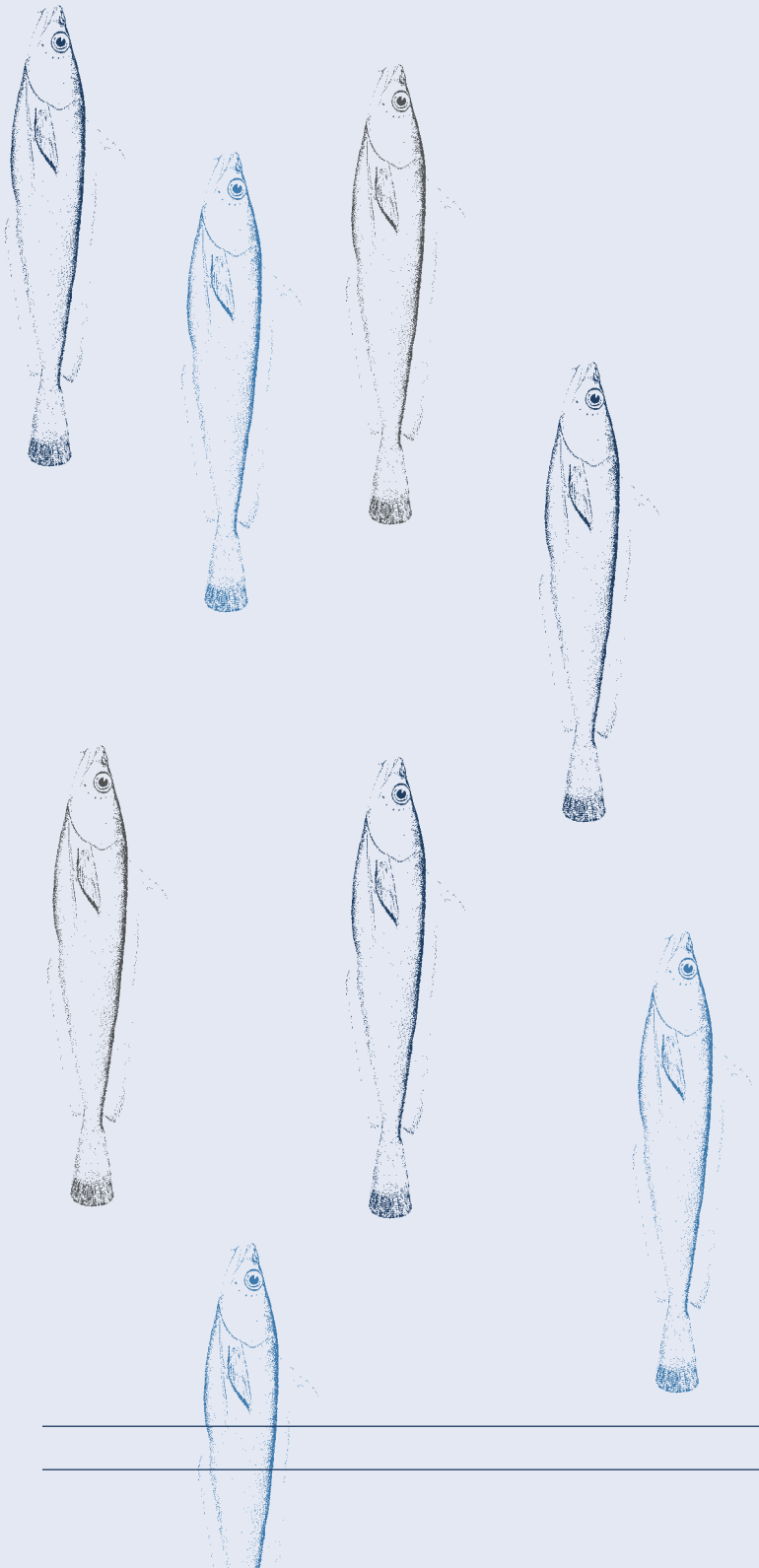
1. The Science Center, in consultation with NMFS's Greater Atlantic Regional Fisheries Office and the industry, should evaluate the feasibility of a New England Groundfish Reference Fleet modeled on the Norwegian program.

2. The Science Center, in conjunction and coordination with Sea Grant and the Saltonstall-Kennedy program, should continue to conduct and improve cooperative research efforts — including broadening the scope and reach of sociocultural science research and data collection projects through community-level longitudinal studies.

3. The Science Center should publish a detailed annual report of all cooperative research and results, including how the results will be used by the Science Center and any recommendations for further research or use of the cooperative research by NMFS and the Council.

4. Congress should appropriate additional funding to the agency to allow for the creation and support of a complementary fishery-dependent science strategy, including development of a reference fleet in the groundfish fishery.

D. NMFS AND THE COUNCIL MUST USE THE BEST AVAILABLE SCIENCE — INCLUDING THE SOCIAL SCIENCES — TO INFORM MANAGEMENT



Management's primary focus is on National Standard 1, as it should be, requiring FMPs to prevent overfishing and achieve optimum yield on a continuing basis from each fishery.[237] Consistent with this conservation objective, FMPs must also balance the other nine national standards. This requires a focus on the "best scientific information available," including the best available social science. While it should be recognized that managers use the "best available social science" in their management actions, it must also be recognized that the science currently available is not sufficient to satisfy the requirements of National Standards 4 and 8 - or to understand the sociocultural or community-level economic impacts of management decisions. In order to appropriately balance National Standards 4 and 8 with conservation mandates, the Council and NMFS should develop and consider additional and updated social science.

The use of current social science data and analysis is critical. The Council's staff social scientist has weighed in on this issue:"[I]nformed fisheries management requires regular, coordinated reporting on the social and economic status of the industry."[238] Such social science is important for more than statutory compliance.[239] Management approaches informed by adequate social science can directly connect to the fishing communities' sense of whether they are seen and heard by the management system that controls their livelihoods. The failure to systematically collect, analyze, and utilize granular, community-level social science data in a timely manner in this fishery reduces fishermen's belief in the groundfish sector program and undermines trust in the entire management system.

A recent survey of Council members reflected their reluctance and discomfort with addressing social and cultural issues:

"There are times with some actions that I feel I don't have a real grasp of the actual dollar numbers and how dependent people are on specific resources. Particularly when you get into small communities that have small boats that may participate in multiple fisheries."

"I don't think we really understand, if we increase possession limit, what will that do to consolidation or to the leasing market? … I don't fully understand how all those things are going to interact with each other."

"I don't know how [Council staff would] do a better job. I truly don't. They do a pretty darn good job laying information out there, just they're using really bad information to derive an answer."

"[T]hat's my biggest problem with social sciences and social information. Much of it is unavailable to fisheries managers. And we manage by guesswork with fingers crossed hoping it all works out."

"I haven't pursued … social science information because it's just not there in the amount and at the quality that I would want. So it's just too frustrating to try and get something they cannot provide."

LINDSEY WILLIAMS ET AL., "CONSIDERATION OF SOCIAL INFORMATION IN NEW ENGLAND FISHERIES MANAGEMENT: REPORT ON 2019 INTERVIEWS WITH NEW ENGLAND FISHERY MANAGEMENT COUNCIL MEMBERS," SUBMITTED TO NEFMC, JANUARY 2020 COUNCIL MEETING.

The social sciences, particularly those focused on the human dimensions of the fishery, rarely emerge in any Council management discussions, except when they are used to justify higher annual catch limits and other decisions with lower conservation benefits but higher short-term economic benefits. The Council continually defers meaningful analysis of or action on fundamental social and cultural issues routinely raised by fishermen and others involved in the fishery.

To be fair, we recognize that the Council has limited staff and resources to collect, analyze, and use social and economic data.[240] Moreover, the Council properly focuses its limited resources toward the natural sciences to prevent overfishing and produce optimum yield, the overriding mandate of the MSA. The two areas of inquiry and management, however, are not mutually exclusive. Healthy stocks make for healthy fisheries and the coastal communities that depend upon the long-term social and economic benefits that flow from healthy stocks. As the Council and NMFS rely upon the Science Center to collect and analyze the necessary social science data (as well as the biological data), it will be a key player in addressing the limitations identified in this report.

But the Science Center also has significant resource limitations with only eleven economists and four non-economics social scientists to implement all aspects of the agency's ambitious "Human Integrated Ecosystem Based Fishery Management, Research Strategy 2021-2025"[241] as well as provide mission-critical technical support to two fishery management councils for all their FMPs.

Notwithstanding these resource limitations, additional social science is required to appropriately understand how management actions will affect fishermen and their coastal communities. NMFS itself acknowledges how significantly social science research lags in New England:

> *The [Science Center] has had long-term data collection efforts in the biological sciences for many decades and some collections for more than a century..., the bottom trawl survey program began in 1963 ... and observers have been collecting [biological] fisheries data since 1972. However, comparable data streams for the social sciences have been lacking, including even basic demographic information about fishery participants.*[242]

This "five-year review" of the sector program was not completed until 11 years after the program was implemented.

This problem is not limited to data gaps and resource limitations. The Council and NMFS often fail to consider these issues even when they are directly presented to them. A stark example of this is the Council's 2021 Catch Share Review. This "five-year review" of the sector program was not completed until 11 years after the program was implemented. Also, the data used were both very generalized[243] and outdated for purposes of correcting any current issues with the fishery.

More revealing of the intrinsic problem, however, was the treatment of the extensive public comments and input that the Council requested as part of the 2021 Catch Share Review. These comments were largely ignored: "Comments received provided valuable information and references for consideration in the review. Much of the work received fell outside this current evaluation period, *but should be revisited in subsequent review*."[244] It was the same case for the feedback received during the port meetings with the industry: "These meetings did not limit the scope to the evaluation period.... The input received was valuable and will serve well for subsequent reviews but was not collected in time to inform the analyses of [the 2021 Catch Share Review]."[245] Why was the fishing community even asked for their views if managers planned to push responsive action off indefinitely?

The Council's 2021 Catch Share Review, as far as CLF can determine, did not produce a single responsive management action. The Council did not prioritize any of the numerous issues raised by the review in its next budget and apparently has no intention of addressing those issues in the near term. The 2021 Catch Share Review turned out to be simply a very expensive and resource-consuming checkmark on the Council's "to-do" list, not the analytical tool to improve the sector program that it was intended to be – or as it was required to be under NOAA's Catch Share Policy. The Council's approach to dealing with these community issues is, unfortunately, all too reminiscent of similar approaches used to deflect the more difficult social and economic issues encountered in the development of Amendments 16 and 18.

The Council's data-limited and outdated five-year catch share review stands in stark contrast to the Pacific Council's five-year review of its groundfish catch share program. The Pacific Council's formal review process was completed in December 2017, six years after the start of the catch share program. To get detailed community input, the Pacific Council utilized a Community Advisory Board (CAB) that represented all segments of the fishery. This CAB "provide[d] the perspective of fishing communities on Catch Share Program performance, potential improvements, and other advice the [Pacific] Council request[ed] to inform the program review."[246] The CAB presented the Pacific Council with a set of rulemaking recommendations based on the review, of which six were selected by the Pacific Council for further rulemaking actions.[247] New regulations corresponding to those six follow-up actions went into effect in January 2020,[248] more than a year before the New England Council even approved its first five-year review report.

It will take a more concerted effort to strategically identify and prioritize the most pressing issues and deploy the limited social science resources to address those issues.

The recommendations of the 2018 Council Program Review, another detailed, resource-intensive, third-party expert review of the Council's operations and capacities, met a similar fate as the 2021 Catch Share Review. The program review panel rated 22 of its policy recommendations as "high priority," but, in response, the Council only rated 5 of these as "high."[249] Particularly germane to this discussion of the Council's view toward community-based social and economic data, the panel recommended, as a high priority, that the Council should "increase its ability to meet [National Standard] 8 on the participation of fishery-dependent communities...."[250] The Council, in its review of those recommendations, however, rated that priority as "low."[251] When the status of the program review recommendations was brought up later during the development of the Council's 2021 budget, the Council's executive director reported that no progress was being made in implementing the program review's social science recommendations because no one currently on the Council "seemed concerned about them, probably because they were more concerned about other Council priorities."[252] While priorities must be balanced, the Groundfish FMP still must be consistent with all the MSA national standards.

All this leads CLF to conclude that in addition to the multiple, significant biological and overfishing issues that continue to challenge the Council and NMFS, they and the Science Center have a serious strategic challenge with respect to understanding and managing the "human dimensions" of this iconic fishery. It is a longstanding and correctable challenge that requires active intervention. It will take a more concerted effort to strategically identify and prioritize the most pressing issues and deploy the limited social science resources to address those issues. Equally as important as collecting and analyzing granular, real-time, community-level data on the short-term impacts of current fisheries management decisions are the quantitative and qualitative analyses of the long-term ecological and socioeconomic benefits to fishermen, coastal communities, and the marine ecosystem of fully rebuilt groundfish populations.

The resources available for improving the collection and use of rigorous and timely social and economic data in management should not be narrowly limited to the Council's

or the Science Center's own budget resources. All federal fisheries research dollars available in the region should be utilized including, for example, funding for the Saltonstall-Kennedy program, the Knauss Fellowship, and the Sea Grant program. Federal resources should also be tightly coordinated and integrated with science resources available at a state level. Perhaps community development or economic development organizations could also be a valuable source of usable data on community impacts.[253]

Furthermore, NMFS's budget requests to Congress should be set at levels that will allow them to execute the responsibilities Congress has placed on them. Congress has a key responsibility here. The New England delegation seems very engaged with and responsive to the challenges facing the region's fisheries, but they have to ensure that the management and regulatory agencies have the resources available to understand and meet those challenges.

Finally, if all available science resources are marshalled and carefully targeted, it may be that developing accurate and timely social science data for New England's historic groundfish ports is not such a large undertaking or as daunting as might otherwise be assumed. One group of academic social scientists working in the region offered the following observation:

> *Traditionally, a perceived impediment to the effective inclusion of individual-level social data has been the costs and logistical challenges associated with surveys and interviews. However, longitudinal studies to measure individual and community well-being would cost far less than what is required for biological monitoring of fish stocks. Moreover, multiple survey- and interview-based programs already exist for the purposes of monitoring fishing effort and catch, which could potentially be leveraged or expanded to incorporate key social metrics.*[254]

Much of the work of developing a strategy to collect social and economic data required for this analysis has already been outlined. In 2010, the Science Center developed a model that is capable of evaluating the social and economic impacts of catch share programs based on the performance metrics of financial viability, distributional outcomes, stewardship, governance, and well-being.[255] This analysis emphasized the importance of community outreach "to target stakeholders less likely to participate in mainstream initiatives[,] … such as vessel crew and shoreside businesses[,]"[256] as well as the "need to track what happens to people who leave the fishery. Is it by choice? Do they feel forced out? What sorts of livelihoods do they find after leaving?"[257] These are all critical questions; the Council and NMFS need to be able to answer them.

The Science Center also completed demographic "snapshots" of 177 Northeast fishing communities in 2007[258] and produced a national catch share community participation analysis in 2017 that provided valuable non-economic social science data, although it was limited to data through 2013.[259] It does not seem out of the question that these initiatives could be kept up to date in a cost-effective way. Perhaps there are valuable lessons to be learned from the Pacific Economic Data Collection Program,[260] which produces annual economic data on many aspects of the region's groundfish fishery. NOAA's Catch Share Policy, indeed, recommends that "Councils consider endorsing the obligatory submission of data, including social and economic data, in return for the use of the public's fishery resources."[261] It seems feasible that such a program could be expanded to include non-economic social science data and put in place in the New England groundfish fishery through regulation.

The Science Center also made important efforts to conduct crew surveys in 2012–2013 and again in 2018–2019 across Maine to North Carolina. The first effort produced few successful surveys but, nonetheless, "produced rich and instructive results…."[262] Moreover, it was an important first step. The survey protocols were improved, and a second survey in 2018–2019 produced more positive responses.[263] The Science Center's intention, which can only be realized with the endorsement and support of industry and community leaders in the ports, is to repeat the survey on a three-year cycle, improving the survey instrument and protocol over time. It is vital for the purposes of understanding the impacts of the catch share program that the survey protocols are expanded to include the less active and inactive ports that have traditionally been engaged in the fishery. Hopefully as well, the results of future surveys can be made available to the Council, NMFS, and the public in a time-sensitive manner so that management actions can be taken when necessary.

Industry trust in the sector program is directly connected to their perception that NMFS and the Council are aware of current economic and social circumstances and the human consequences of their actions. Council staff described the management consequences of shortchanging this work in 2012: "The lack of systematic and comprehensive data collection and presentation can lead to unintended consequences for fishing communities and fishermen, and create compliance problems that make regulations less effective and sow discontent."[264] That appears to be exactly what has happened in this fishery, judging by the public comments received during the 2021 Catch Share Review.

Given the long, difficult, and discouraging course of this fishery, it will not be easy to reduce the discontent and rehabilitate meaningful relationships with fishermen in a way that allows them to feel confident their concerns matter and are taken into account by managers and scientists. The 2021 Catch Share Review documented that fact: "At many port meetings, participants expressed profound doubt that their comments would make any difference. That doubt stemmed from having participated in forums, public input sessions, and meetings over the years and not seeing their concerns and ideas taken into consideration or reflected in ultimate decisions."[265] The review concluded that:

> *[A] community's sense of fairness concerning who should have access to a resource, how the resource should be used, and how rights of use should be transferred to others or passed to future generations must be accounted for in designing management systems if these systems are to be followed and not fought.*[266]

If the community is not being listened to in the first place or routinely engaged during the management process, that sense of fairness can never develop.

Recommendations

1. NMFS's Greater Atlantic Regional Fisheries Office, the Council, and the Science Center should expand their social science staff and dedicated data collection efforts to increase their ability to recognize and analyze social and community shifts and vulnerabilities associated with the implementation of the sector program over time. This work should specifically extend to communities with historic ties to the groundfish fishery regardless of their current "engagement" level in the fishery.

2. NMFS should direct the Council to develop follow-up actions for the groundfish catch share program consistent with the recommendations and comments received during the five-year catch share review.

3. NMFS should require the Council to conduct a second five-year review of the sector program analyzing fishing years 2016–2021 to be completed no later than the end of 2023.

4. The Science Center should convene a working group composed of scientists (including regional Sea Grant), managers, regulators, state fishery officials, industry leaders, and NGOs to identify and develop solutions that would address the persistent sociocultural data gaps in the fishery.

5. To fulfill its responsibility to provide for the sustained participation of fishing communities at a national level, NMFS should:
    a. create a national policy advisor position dedicated to small-scale fishing communities to improve the dialogue, understanding, and partnerships with these communities.[267]
    b. adopt a national small-scale community fisheries policy to provide policy guidance to its regional offices.
    c. develop regional action plans to implement this policy.

6. Congress should appropriate additional funding to the agency to facilitate these recommendations.

E. NMFS SHOULD ENSURE FULL CATCH ACCOUNTABILITY IN THE FISHERY

The importance of collecting precise and accurate catch data in the sector program cannot be overstated. It is the foundation for improving voluntary compliance, ensuring an effective and fair enforcement program, and generating the data necessary to prevent overfishing. Carlos Rafael would have had more difficulty continuing his illegal activities if the groundfish fishery had full accountability. For purposes of this report, CLF is defining "accountability" broadly to include 100 percent at-sea monitoring, dockside monitoring, and effective sector catch self-monitoring.

NMFS recognized the importance of accurate catch data when the sector program was implemented,[268] but it dismissed both NGO and some industry calls for 100 percent at-sea monitoring.[269] NMFS seems now to have reversed its position, although some fishermen, Council members, and industry leaders still push back on the need for 100 percent monitoring. In contrast, participants in the Pacific groundfish fishery, who unlike New England groundfishermen currently pay for 100 percent at-sea monitoring, generally support the program and recognize the importance of full accountability for their future.[270]

In addition to improving compliance and preventing overfishing, the already pressing need for real-time, accurate catch data is increasing for two reasons. First, climate change impacts are already challenging stock assessment model assumptions; additional and more timely data are necessary to appropriately react to shifts in stock location, abundance, and productivity. Second, real-time catch data would allow NMFS to more accurately target and remove chronic violators, assuring other fishermen that rules cannot be broken with impunity. The 2021 Catch Share Review noted that, currently in New England, "[t]he limitations to monitoring … affect the ability for enforcement agents to ensure compliance with regulations."[271] Such limitations are to be contrasted, again, with the Pacific groundfish fishery where, as discussed previously, 100 percent monitoring has helped enforcement personnel gain access to high-quality data.

Compliance in New England's groundfish sector program, however, will not be achieved simply by adding more human observers or cameras on groundfish vessels. Sector managers play a crucial role and are responsible for ensuring that their members accurately and timely report catch. To date, exercises of that responsibility have been invisible to the public. What is known, though, is that Rafael's sector did not pursue any enforcement actions against him, and joint and several liability did not deter non-compliance. Of course, none of that should be a surprise given the fact that NMFS allowed Rafael to completely control his own sector.

Beyond the Rafael case, it is difficult to verify whether other sectors are internally assessing compliance. Annual sector reports that would report on such activities are not readily available to the public[272] despite NMFS's assurances that the reports would be public when it approved Amendment 16:

> *The purpose of the annual sector report is to identify the full complement of sector operations conducted during a [fishing year] to allow the Council, NMFS, and the public to evaluate the biological, economic, and social impacts that such operations had on the NE multispecies fishery and other fisheries in which participating vessels were engaged. … [B]y summarizing the fishing activities of sector vessels, the public can understand the strategies employed by sectors to maximize the benefits of fishing operations. … Reporting all enforcement actions associated with sector vessels, including those associated with other fishing activities, is critical to understanding how the sector operates and if sector operations are having an adverse effect on any fisheries.*[273]

Without full access to the annual sector reports when they are filed with NMFS, it is impossible for the public and other sectors to determine whether all the sectors are complying with the terms of their operating contracts.

Sector compliance, though, does seem to be falling short in one particular and significant area: catch reporting. It is widely understood that there is substantial catch misreporting occurring in the fishery. In fact, unreported discarding of groundfish stocks at sea is an open "secret," despite the fact that all sectors are required to have effective monitoring programs to accurately track their members' catch. The scale of this misreporting is difficult to estimate with any precision. In the spring of 2018, an NMFS official stated:

> **"Effective management of sectors requires that catch be accurately known."**
>
> AMENDMENT 16 FEIS AT 110.

> *[T]he number of individuals coming to us with reports about cod discarding is unusually high. … Reports that we are receiving this spring are [that] there are discards of two to three thousand pounds per trip happening in this area [the inshore Gulf of Maine/Stellwagen]. We are hearing reports from not just groundfish vessels but other vessels, non-groundfish vessels, that they are catching dead cod in many of their tows. We are also hearing reports that observers are not recording these discards….*[274]

Some fishermen have also gone on record to highlight the ineffectiveness of the at-sea monitoring program and the biased catch data it produces:

> *As a previous observer in 2016 and 2017, I faced a lot of experiences where I'd show up to a boat and the captain would go, "OK … you got two choices, he'd say, you can either … steam out for a couple hours, do one tow, come back in, and there's your day. Or if you, you know, would turn an eye, we can go out and have a full day and come back in."*[275]

In addition to illegal discarding, the U.S. Coast Guard has identified a pattern of misreporting in the groundfish fishery and estimated that as much as 2.5 million pounds of regulated stocks could have been misreported between 2011 and 2015.[276]

Furthermore, a recent report from NOAA OLE[277] noted that the sectors were not directly auditing their member's vessel trip reports (VTRs) to validate the accuracy of the VTR data.[278]

There is no publicly available information that sectors or sector managers are doing anything to identify or curb these systematic catch-reporting violations, all of which are specifically prohibited by sector operating rules and NMFS regulations.

Although certain sector managers have publicly stated that they are operating effective compliance programs that go beyond FMP requirements and should be trusted to do more,[279] CLF was not able to find any public information verifying such claims.[280] And even if some sectors are effectively monitoring their members' actual catches and correcting violations, non-compliance by other sectors, like Rafael's former sector, hurts everyone in the fishery – as well as the science on which catch limits are based.

Amendment 23 to the Northeast Multispecies FMP ("Amendment 23"), adopted by the Council in September 2020, will require 100 percent at-sea monitoring, which will significantly increase the accuracy of catch data once approved and fully implemented by NMFS. This comprehensive at-sea catch monitoring will improve compliance as well as stock assessments and provide a foundation of trust among fishermen and others. The monitoring data streams that will subsequently be available could provide the needed capacity in the fishery to adapt management to real-time conditions, including the changing ocean ecosystem. However, as we discuss below, there must also be an effective external enforcement presence before the fishery can realize the full benefits of this increased accountability.

Finally, full accountability must include the closer monitoring and oversight of dealers, auction houses, and wholesalers. Public reports indicated that dealers were involved in Rafael's illegal misreporting and mislabeling schemes, but no corrective action was taken as far as the public is aware.

There are simply too many rumors and stories to ignore the likely fact that dealers are, at best, not being diligent in their reports and are, at worst, abetting fishermen evading regulations by accepting fraudulent VTRs or other tricks.[281] Dockside monitoring was required when Amendment 16 first took effect but then was discontinued after a couple years. Amendment 23 will not reinstate the program, despite the experience with Rafael. Given that dealer reports serve as an important cross-check for both sector managers and NOAA OLE, particularly for what is caught at sea and what gets reported as landed, they should be the focus of increased scrutiny, auditing, and enforcement.

Recommendations

1. NMFS should approve and fully implement Amendment 23 to the Northeast Multispecies FMP as soon as possible.

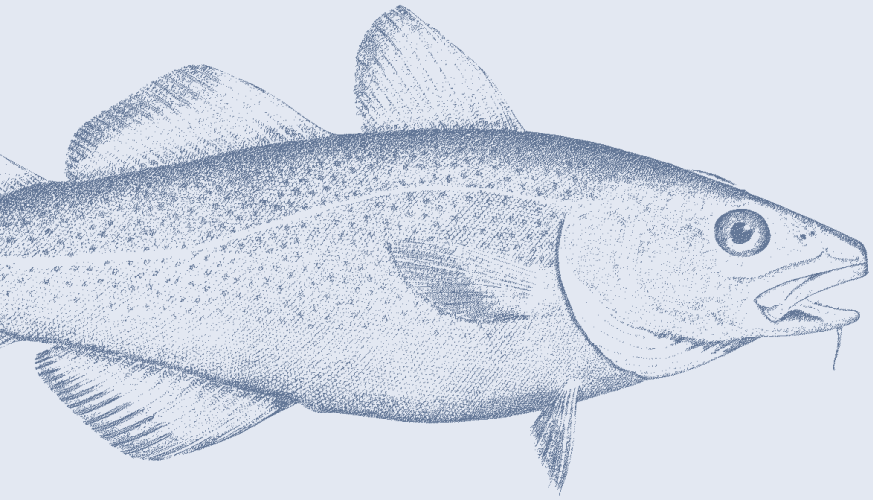
2. NMFS should require the Council to develop a robust dockside monitoring program to verify dealer activity.

3. NMFS should require that all sector annual reports be made publicly available when they are submitted to the agency.

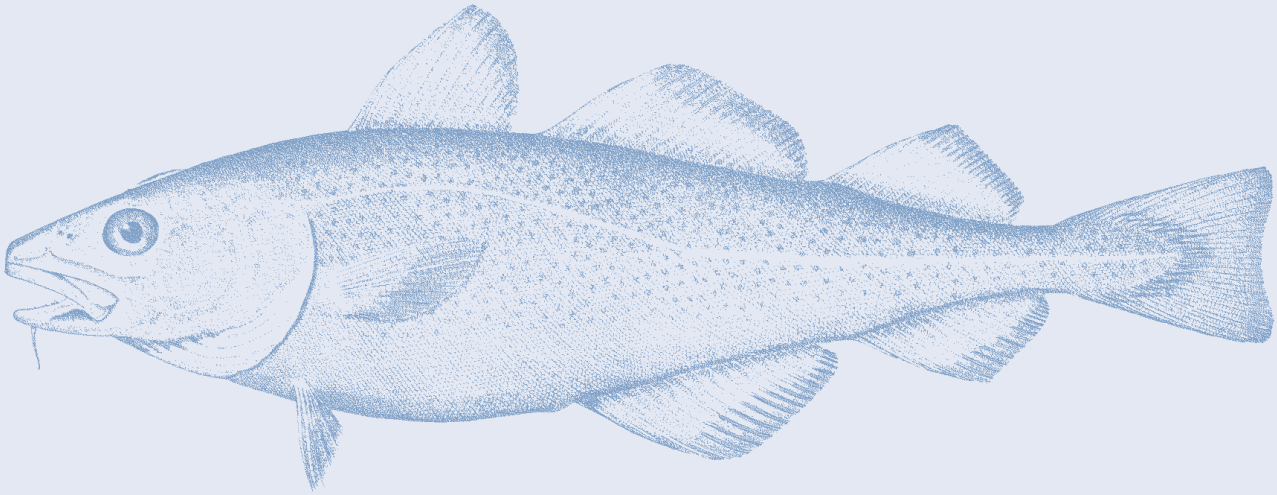
4. Congress should amend the MSA to require 100 percent at-sea (electronic or human observers) and dockside monitoring on all vessels enrolled in catch share programs.

5. Congress should appropriate additional funding to continue to reimburse industry expenses for at-sea monitoring in the New England groundfish sector program as well as for the transition to electronic monitoring (cameras/equipment, data management, software development, etc.) for the first four years of implementation of the Amendment 23 program. In subsequent years, Congress should appropriate levels of funding to phase in industry's responsibility for expenses over a three year period.

F. NOAA'S ENFORCEMENT PROGRAM NEEDS TO BE STRENGTHENED IN NEW ENGLAND



As stated in the 1999 National Research Council Report, effective enforcement is an indispensable aspect of compliance: "Regardless of how well any fishery management plan is designed, noncompliance can prevent the attainment of its economic, social, and biologic objectives."[282] Under the smart compliance policy, the industry's role in achieving compliance should be strengthened through self-management and accountability, but there must also be an external enforcement component that targets and removes persistent violators as well as deters smaller infractions by everyday fishermen that could grow into more persistent problems. The 1999 National Research Council Report identified three key factors related to external enforcement: "(1) effective coordination of onshore and at-sea enforcement activities, (2) adequate resources for the enforcement process, and (3) resources targeted at the most important noncompliance problems."[283] While there has not been a comprehensive enforcement audit in the region for some time, available information leads CLF to conclude that there are significant deficits in all three factors supporting effective enforcement.



When using the term "enforcement program" in this report, we refer to the entire enforcement and compliance apparatus and program – everything from the initial reporting, investigation, or detection of a potential legal violation to the final civil or criminal prosecution. Such a program also contemplates strategic and informed relationships between all enforcement partners to maximize the effectiveness of the program. That would include NOAA OLE, NOAA GC, state enforcement agencies, the U.S. Coast Guard, and NMFS. A brief overview of the current program, as CLF understands it from public documents, is provided below.

NOAA OLE enforces more than 40 laws and "conducts enforcement activities through patrols both on and off the water as well as monitoring vessels electronically; criminal and civil investigations; partnerships with state, tribal, federal, and nongovernmental organizations; outreach and compliance assistance; and the use of innovative technological tools."[284] NOAA OLE relies on the U.S. Coast Guard and state enforcement agencies to help enforce federal fisheries regulations in federal and state waters. The partnership with state law enforcement agencies is created under two programs: (1) cooperative enforcement agreements that authorize state enforcement officials to enforce federal fisheries laws and regulations in federal waters, and (2) joint enforcement agreements that provide a mechanism for transferring federal dollars to the states to perform law enforcement activities in support of federal regulations.

NOAA OLE refers civil administrative violations to the Enforcement Section of NOAA GC for prosecution. NOAA GC also provides legal advice to NOAA OLE, NMFS, and the regional fishery management councils. CLF could not determine how closely these two critical parts of the program work together to develop forward-looking enforcement strategies.

The NOAA GC website provides this insight on the Northeast region:

> *Enforcement efforts here are focused on serious and purposeful offenders. Over the past several years, there has been a significant increase in the number of serious cases being referred to NOAA General Counsel. Areas of particular concern include the use of illegal net configurations in the multispecies fishery, large-scale violations by fish dealers, incursions into closed areas by scallop and multispecies vessels, and fish landings that exceed trip limits (particularly in the cod and general category scallop fisheries).*[285]

CLF was not able to confirm the fact or the nature of those stated enforcement increases.

In those situations where a civil administrative penalty is not appropriate or where there is no civil administrative remedy, the case may be referred to the Department of Justice for a criminal prosecution. These cases generally involve repeat offenders, offenders who conspire with others, and/or offenders that intentionally commit a serious offense.

CLF could not access details regarding the NOAA OLE or GC program over the course of the sector program's existence beyond the limited materials that are publicly available and summarized below. NOAA OLE and GC staff at both the regional and headquarters offices declined our requests for informational interviews and for responses to written questions. Notwithstanding, CLF concludes that a lack of sufficient funding and staffing has limited the effectiveness of the Northeast Enforcement Division of NOAA OLE. They are responsible for covering two thirds of the Atlantic seaboard with insufficient field staff. One fisherman CLF interviewed reported that he had not seen a federal law enforcement person on the dock

where he lands his fish for years. That report was confirmed by others who stated that enforcement resources are concentrated only at the largest ports.[286] The Northeast Division also lacks a dedicated offshore-capable enforcement vessel and has to rely on the Coast Guard or state enforcement agencies for conducting at-sea inspections or investigations. This deficiency seriously compromises the flexibility and effectiveness of the program.

Publicly available information through annual NOAA OLE reports indicates that NOAA OLE staffing nationwide declined between FY 2009 and 2014, increased between 2015 and 2016, and then declined again in 2017 and 2018. The number of criminal convictions or civil notices of violation resulting in fines does not appear to have increased over that period.

There also do not appear to be any permit sanctions issued in the Northeast region in recent years, apart from the Rafael case and the brief operating license suspensions of his involved captains. It is impossible for an outside observer to identify if these statistics reflect an increase or decrease in the effectiveness of the enforcement program.

Communication with former enforcement officials indicates that there may be "silos" within the program where one element of the program may not know what other elements are doing. CLF was able to speak with representatives from one state enforcement group who stated there was good coordination between the state enforcement personnel and the federal program. Others said such coordination is not widespread or universal.[287]

NOAA OLE and Northeast Enforcement Division (NED) Staffing and Budgets FY 2015 to FY 2018

YEAR	OVERALL OLE BUDGET	OVERALL OLE ENFORCEMENT STAFFING	NED OLE BUDGET	NED OLE STAFFING	NED OLE SIGNIFICANT CASES — LARGE MESH GROUNDFISH
FY 2015[288]	$65 million	189 (increase of 13 from FY 2014)	$6.4 million	45	None listed
FY 2016[289]	$68.6 million	195	$7.7 million	42	2 (same owner; both fishing with illegal net liner) ($20K fine and $40K fine)
FY 2017[290]	$67.1 million	190	$12.7 million	42	Rafael's multiple criminal and civil violations plus 16 separate violations related to a halibut investigation leading to a $1K summary settlement
FY 2018[291]	$69.0 million	173	$13.1 million	52	None listed

Without an effective federal enforcement presence, even the incentives for voluntary compliance provided by a well-designed and industry-supported catch share program will be ineffective. Rafael openly bragged about his illegal behavior and dared federal and state agencies to catch him. And he was caught numerous times during his years in the groundfish and the scallop fisheries[292] but received weak monetary penalties and no permit sanctions, which allowed him to stay in the fishery and profit at others' expense. One industry leader wrote to the agency: "Fishermen are saying why should I do this, comply with sector rules if NMFS is going to turn a blind eye."[293]

CLF concludes that a lack of sufficient funding and staffing has limited the effectiveness of the Northeast Enforcement Division of NOAA OLE.

Even while in jail, Rafael continued to profit from his operations. Beyond an eight-month suspension of NEFS IX's operating privileges, a suspension that politicians bitterly complained about,[294] there is no indication that any additional sanctions were brought or levied against the NEFS IX sector manager or members except for requiring them to cover any quota overages associated with Rafael's mislabeling of landed stocks.[295]

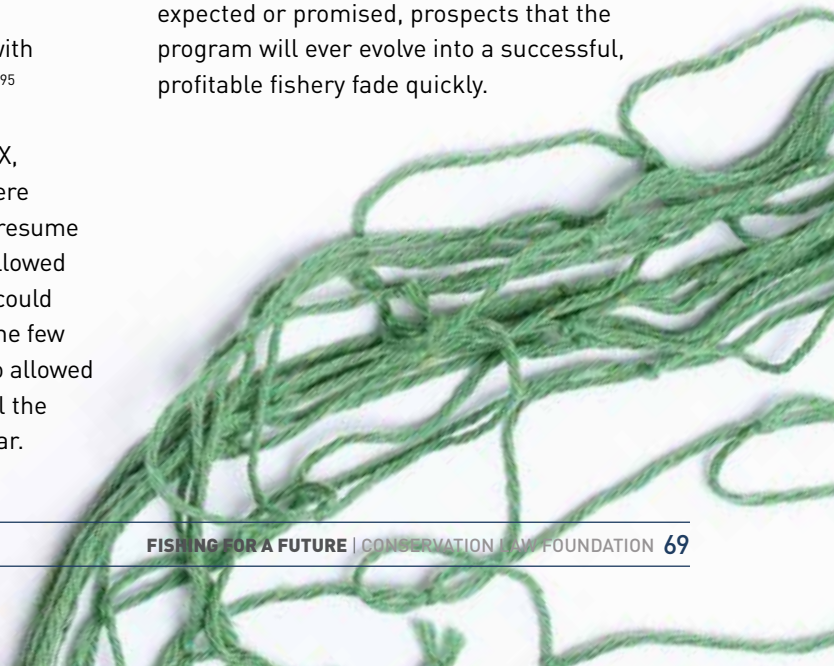
Most of the vessels that were in NEFS IX, including those controlled by Rafael, were allowed to move to NEFS VII in 2018 to resume operations. Rafael's vessels were not allowed to actively fish until they were sold but could lease their quota to other fishermen. The few remaining vessels in NEFS IX were also allowed to resume operations in July 2018 until the sector was disbanded the following year.

It appears that Rafael was allowed to continue to profit from his groundfish holdings until December 2019 and his scallop holdings until March 2020 – more than two years after he was sentenced to prison. Unsurprisingly, this did not go unnoticed by others in the industry. Furthermore, Rafael's civil settlement allowed him to privately sell his valuable fleet and the permits attached to those vessels, leaving him out of the fishery but a multi-millionaire.

The importance of effective enforcement to the success of a fisheries management program cannot be overstated, even "where a high degree of compliance is realized via the twin forces of moral obligation and social influence."[296] As summarized by researchers with extensive experience in the New England groundfish fishery:

> *Weak enforcement … allow[s] chronic, flagrant violators to flaunt violation of the law. Being seemingly immune to the regulations sends two signals to normally law-abiding fishermen. One is that the regulatory procedures are unfair, having no effect on flagrant illegal fishing. The other is that the regulatory program is not effectively managing the fishery (by protecting the resource).*[297]

When those signals are reinforced by the failure of the sector program to perform as expected or promised, prospects that the program will ever evolve into a successful, profitable fishery fade quickly.



1. ENFORCEMENT PROGRAM'S CHECKERED PAST

The federal enforcement program in the region has experienced two high-profile events in recent years: (1) a public "exposé" by the Department of Commerce Inspector General and a Commerce Department-appointed special master and (2) the publicly disappointing resolution of Carlos Rafael's criminal and civil violations. As an outsider, CLF recognizes that it does not know all of the facts, circumstances, or strategic calculations that formed the basis of the NOAA OLE and NOAA GC decisions made prior to and during these events, but the program's reputation did not fare well in the public arena in either instance. We briefly summarize both as they provide important contexts for current perceptions of the enforcement program as an effective external compliance tool.

a. The Inspector General Investigation

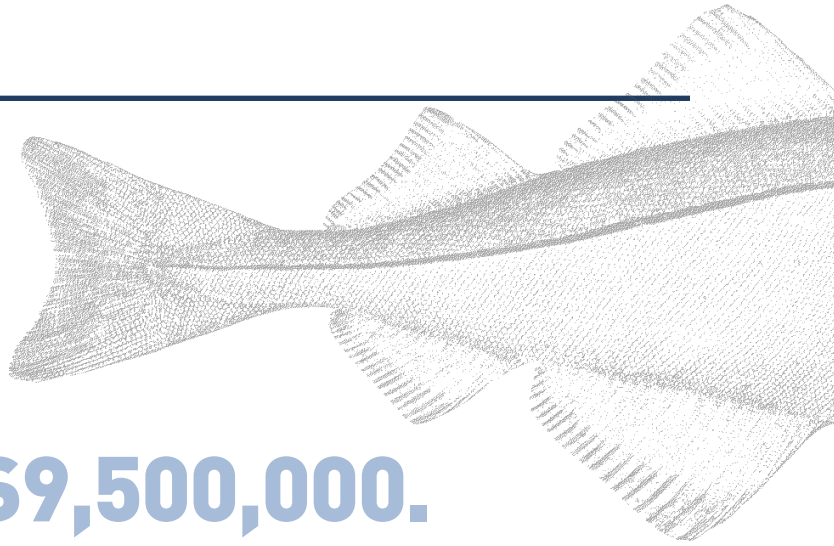
In December 2006, NOAA OLE officers and other federal agents raided the Gloucester Seafood Display Auction and set off an intense media and political firestorm[298] that led to an Inspector General investigation into NOAA's enforcement practices. Although the ensuing investigation and report[299] seemed more driven by politics and historic grievances than it was by fact, the Inspector General did identify a number of significant issues with the enforcement program at large. On the docks of New England, there is no question how the Inspector General's report was received and understood: It was a "stinging public rebuke" of NOAA's enforcement program.[300] Many enforcement staff either left NOAA, were suspended, or were re-assigned.[301] While this investigation was underway, enforcement cases in the region dropped precipitously, falling from 120 cases in 2008 to 82 in 2009 and to just 9 in 2010.[302]

The Secretary of Commerce continued the investigation of NOAA's enforcement practices nationally and concluded that NOAA had "overstepp[ed] the bounds of propriety and fairness...."[303] Out of 93 cases reviewed dating back to 1994, the Secretary reduced sanctions in or forgave 27 of the cases – 23 of them from New England.[304]

Whether or not the harsh conclusions of these reviews were fully merited,[305] the regional enforcement program was severely compromised – just as the sector program hit the water. One reporter observed that the whole episode "successfully diminished NOAA's will to regulate."[306] Morale problems no doubt existed for years afterward, though most of the current regional enforcement staff was hired after this series of incidents.

b. The Rafael Bust

The second major development with enforcement in the region was the successful undercover operation that led to the arrest and prosecution of Carlos Rafael. With his admissions of serious violations of law and his track record of multiple criminal and civil violations in New England fisheries, NMFS and NOAA OLE appeared to have an open-and-shut case and an important opportunity to signal that illegal activity would not be tolerated. As noted previously, Rafael's fleet had openly flaunted rules and regulations for some time. The results of Rafael's federal criminal and civil proceedings, therefore, were a profound disappointment and a surprise to many. As one long-time observer told CLF in response to the tepid results in the civil proceedings: "The fix was in."[307]



The government asserted that the fair market retail value of Rafael's illegal fish was somewhere between

$3,500,000 and $9,500,000.

Rafael admitted to mislabeling and misreporting 782,812 pounds of groundfish between 2012 and 2015[308] as well as that 13 of his vessels and several captains were involved in the criminal activity.[309] The government asserted that the fair market retail value of his illegal fish was somewhere between $3,500,000 and $9,500,000.[310] In the words of the federal prosecutor: "Despite three federal prosecutions, numerous regulatory enforcement actions and the simmering hatred of his professional colleagues, Rafael has enthusiastically, systematically broken the law for decades."[311]

He was sentenced to 46 months in jail and 3 years of supervised release; he paid $630,480 in various fines and payments in lieu of forfeitures and assessments; and two vessels and their permits (later changed to one in return for an increased fine) were forfeited.[312] NMFS, NOAA OLE, NOAA GC, and the Department of Justice had originally sought forfeiture of all 13 vessels and fishing permits directly involved in the admitted criminal activities as authorized by the Lacey Act,[313] but the federal judge in the criminal case held that such a forfeiture was excessive and barred by the U.S. Constitution's 8th Amendment.

The Lacey Act Meets the 8th Amendment to the U.S. Constitution

Judge Young's discussion of the excessive fines clause in the 8th Amendment raised some important limiting issues in cases like Rafael's.[314] The crux of the court's analysis was the question of whether the government's effort to have the court order forfeiture of 13 of Rafael's vessels and the permits was "grossly disproportionate" to his offenses. The estimated gross market value of those assets was $27–28 million, which would have amounted to a penalty roughly 23 times the maximum fine that the court concluded it could impose on Rafael in the applicable federal sentencing guidelines.

Judge Young concluded that a 23-fold multiple of the maximum criminal fine Rafael could be charged with would have been an unconstitutionally excessive fine and held that a forfeiture of two vessels and permits, valued at around $2 million, was more in line with constitutional precedent.[315] At the end of the day, federal judges have a great deal of discretion to determine what is excessive in this area of law that is "inherently imprecise."[316] Judge Young provided no explicit rationale for his acceptance of a 10-fold multiple while rejecting the 23-fold multiple sought by the government.[317]

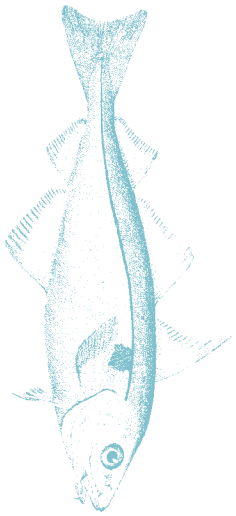
In addition to Rafael's criminal violations, NMFS brought multiple civil charges against him personally and against numerous corporations under his control, as well as members of his sector (for filing false annual reports), and 17 of his captains. The agency announced that it would revoke all 41 of Rafael's groundfish and scallop permits, as well as the involved captains' operator permits, and would deny Rafael issuance of any new permits in the future. They also assessed civil penalties in the amount of $3,294,211.[318] NMFS also suspended approval of Rafael's sector "to protect the integrity of the entire groundfish sector program,"[319] but reinstated the sector eight months later and allowed most of the sector members to relocate to another sector for continued fishing. For reasons that are not publicly available, no charges were brought against the dealers who reportedly were complicit in Rafael's mislabeling and misreporting schemes.[320]

Rafael appealed the civil charges, and an extended period of negotiations behind closed doors ensued. Ultimately, and without meaningful public explanation, NMFS backed down on most of the penalties, settling for Rafael's permanent removal from all federal fisheries, surrender of his seafood dealer permit, and a penalty of $3,010,633. Rafael was allowed to sell his fleet and fishing permits to the highest bidder, and he reportedly walked away with tens of millions of dollars from the sales.[321] The head of NMFS rationalized the settlement by claiming that it "accomplished NOAA's chief objective of permanently removing Mr. Rafael from participation in federal fisheries."[322] For most of those outside New Bedford, though, Rafael's removal from all federal fisheries was a given. NMFS's decision to reverse its initial decision to revoke all his permits and to allow Rafael to profit handsomely from his illegal activities was not. Many considered Rafael's punishment to be grossly disproportionate to the nature and number of his crimes, leading one fishing industry representative to bluntly conclude: "I guess crime does pay."[323]

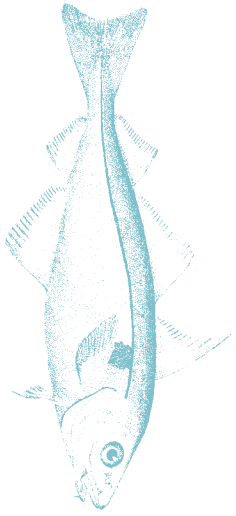
One prominent sector manager expressed similar sentiments to NOAA regarding its handling of NEFS IX: "[NOAA's] failure … to enforce the terms of its agreement [in the approved operating plan] with [Rafael's sector] undermines the entire sector management system."[324] Many in the industry were startled and bitter that Rafael, his captains (all of whom suffered only brief suspensions of their captain's licenses), his sector members, the NEFS IX sector manager, and the dealer (or dealers) who were involved in Rafael's criminal and civil violations got off lightly or escaped punishment completely.

The whole affair was extraordinary and a lost opportunity for the agency to restore the credibility of the sector program and its own reputation in the region. The government's civil settlement with Rafael reduced morale and trust within the fishery and did nothing to build confidence in a level playing field or that fishery's rules would be effectively enforced.

It would be reassuring if the Rafael episode had triggered a programmatic enforcement review and overhaul that resulted in a stronger and appropriately funded enforcement program in the Northeast. However, it is not clear that anything has changed or will change as a result of lessons learned from Rafael's decades of illegal activities.



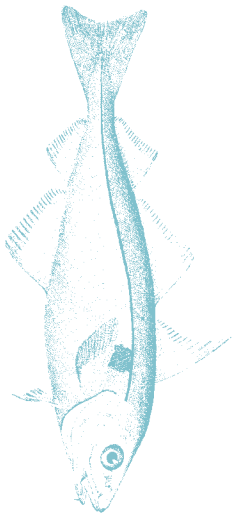
Rafael was the most flagrant practitioner of the long-rumored corruption in the New Bedford groundfish business. Based on decades of involvement with groundfish management, it is our view that the tentacles of this corruption reach into other large ports in New England. Such corruption undercuts the efforts of honest, law-abiding fishermen and dealers, undermining both small-scale fishing businesses and those who sincerely want to transform the reputation of this fishery.



Between 2014 and the end of 2020, 38 violations involving the MSA groundfish regulations were charged, fewer than 6 a year.

2. MOVING FORWARD

In the absence of a more detailed explanation from NMFS of why it settled the civil case the way it did, it is impossible to understand its decision from a strategic perspective, particularly given that this was one of the strongest cases ever built by the agency against the foremost corrupt operation in the fishery. Was there a reluctance, timidity, or indecisiveness to fully exercise the forfeiture powers and authority delegated to it under the MSA, perhaps still stemming from residual sensitivity to the Inspector General's harsh criticisms a decade earlier? Was it due to political pressure from Massachusetts politicians? Were there legal weaknesses in the government's case that the agency has not acknowledged? Was NMFS solely focused on removing Rafael from the fishery as quickly as possible without having to endure lengthy legal challenges? Or was it some combination of all these possibilities or something else entirely?



Unfortunately, the industry and the public will probably never know.

Such questions are important to ask because concerns with enforcement and the groundfish sector program extend beyond the fishery's most notorious character. A 2016 private survey of the industry and others in the region indicated that those familiar with the fishery believed that violations at sea were still occurring with impunity:

> *[M]ultiple interviewees noted that Rafael, while clearly the highest profile and most egregious actor, was likely not the only fishery participant who engaged in these types of practices, eroding confidence in the management system. Unobserved and unrecorded discards were considered the issue most likely to be relatively widespread within the fleet, especially occurring on smaller vessels.*[325]

From a public perspective, the enforcement presence in the fishery still seems — at best — subdued, if not ineffective. Between 2014 and the end of 2020, 38 violations involving the MSA-related groundfish regulations were charged, fewer than six a year, though there were additional charges related to other laws such as the Endangered Species Act and the Marine Mammal Protection Act.[326] Based on our review of the most current publicly available enforcement decisions, and aside from Rafael's case, it does not appear that any permit sanctions were issued in New England during this period.[327]

Although the enforcement program provides an update on recent activities at the start of every Council meeting, little is provided in writing as part of routine Council material. The Council's standing Enforcement Committee has apparently only met formally three times in the past 5 years.[328] It does not appear that enforcement lessons learned from the Rafael case were meaningfully discussed in any management context.[329]

There is also little to be learned about enforcement from the 2021 Catch Share Review, although as noted previously, the review did indicate that inadequate monitoring in the sector program has hindered enforcement. Furthermore, even when regulatory violations such as illegal discarding were raised to NOAA OLE, it is reported that the agency "largely lack[ed] sufficient evidence for any action."[330]

It appears that the Council has made little effort to address enforcement concerns, at least to the extent it can. NOAA OLE presented a "Compliance Improvement Recommendations" report to the Council in 2019,[331] which made several groundfish enforcement recommendations:

> *These recommendations include establishing a new dockside monitoring program with OLE access to monitoring to ensure reporting compliance, increase in [at-sea monitoring] coverage, establishing defined offload times, implementing a video monitoring/ electronic monitoring program, and setting additional multispecies permit ownership caps beyond those currently in place. Not all these recommendations are directly under consideration in Amendment 23, and some would require significant development and resources, but they illustrate limitations of the monitoring system to ensure compliance with program regulations.*[332]

The U.S. Coast Guard also made a recommendation that sector vessels be required to use standardized logbooks, "which would aid in at-sea enforcement."[333] CLF does not have information indicating that any of these measures, apart from the proposed at-sea monitoring requirements in Amendment 23, are in the process of being implemented through sector operating plans or elsewhere.[334]

Current law enforcement personnel in New England are dedicated and highly professional, but their effectiveness is limited by insufficient funding, the extensive geographical scope of their jurisdiction, and the lengthy bureaucratic processing of violations. In a best case scenario, there should be a visible enforcement presence on the docks, in fishing ports, in the auction houses and on wholesale floors, and at sea to ensure adherence to regulations and build relationships and trust with the industry. The Northeast Division of NOAA OLE should also have its own offshore-capable vessel, rather than having to hitchhike on Coast Guard or state enforcement vessels, and there should be routine auditing of sectors to ensure that they are following the monitoring and accountability measures in their operating plans.

Without sufficient presence of law enforcement throughout the fishery — and an established and well-publicized process to target and promptly remove chronic and flagrant violators from the fishery — illegal behavior will not be deterred.

There would also be significant value if NOAA OLE and GC, perhaps in conjunction with the Law Enforcement Committee of the Atlantic States Marine Fisheries Commission[335] convened a meeting of various stakeholders to review the Rafael episode and solicit recommendations on ways to improve enforcement and enforcement credibility in all regional fisheries. Such a review could address various topics of interest to the industry and outside stakeholders, including suggestions with respect to strengthening regional penalty policies, identifying the circumstances for imposition of mandatory permit and operating license sanctions, adopting fishing suspensions during administrative appeals of serious offenses, discussing the disposition of forfeited permits, and instituting effective and confidential whistleblower programs.

It also seems clear that enforcement provisions and mechanisms set forth in the MSA must be reviewed and strengthened to reduce the discretion afforded to NOAA and NMFS personnel with respect to serious, repeat offenses.

Recommendations

1. The MSA should be amended to:
   a. establish categories of offenses and degrees of culpability that will receive mandatory permit suspension or revocation sanctions;
   b. ensure that federally permitted dealers are criminally liable for fraudulent reports;
   c. add a "citizen suit" provision that is available to individuals or entities harmed by an illegal fishing activity;
   d. increase the civil and criminal penalties for categories of major violations;
   e. require mandatory permit sanctions for multiple or serious offenses; and
   f. prohibit the intentional submission of any falsified VTRs, dealer reports, or other compliance documents and require immediate removal from the fishery with forfeiture of all permits and licenses for this major violation.

2. NMFS civil administrative proceedings should be open to the public, including intervenors that allege particularized injury.

3. NMFS and NOAA should delegate the authority to impose permit sanctions and penalties back to the New England region with appropriate checks and balances to prevent inappropriate enforcement actions.

4. NMFS should impose significantly higher fines and permit/license sanctions for repeat offenses and intentional misreporting through its regional Summary Settlement and Fix it Schedules.

Recommendations *(continued)*

5. NMFS should aggressively prosecute anyone who lies or falsely files dealer reports, VTRs, or other self-reported documents submitted to the federal government to the fullest extent.

6. NOAA should have its own administrative appeals system, including administrative law judges, to ensure subject matter expertise and consistency across all appeals.

7. Strategic and tactical coordination between NOAA OLE, NOAA GC, Coast Guard, and NOAA-supported state enforcement personnel should be strengthened to ensure targeted and efficient use of scarce enforcement resources.

8. NOAA and the U.S. Coast Guard should accelerate the development of coordinated and timely data-driven and artificial intelligence–based approaches to focus enforcement on chronic violators.

9. NOAA OLE should create a publicly accessible enforcement reporting system that tracks sector enforcement actions, law enforcement actions, and the resolution of such actions.

10. NOAA should convene a listening session with regional stakeholders to discuss the outcomes of the Rafael criminal and civil proceedings and to solicit recommendations for improvements in the regional enforcement program that would reduce the risks of repeat situations in the fleet and increase the effectiveness of the enforcement program.

11. Congress should appropriate additional funding for enforcement activities at the federal and state levels, including additional funding to support forensic knowledge/data sharing between NOAA OLE, the Coast Guard, and state enforcement personnel to improve targeted enforcement.

VI. CONCLUSION

THE LAST 45 YEARS HAVE BEEN A FRUSTRATING JOURNEY FOR EVERYONE ASSOCIATED WITH THE NEW ENGLAND GROUNDFISH FISHERY – MOST PARTICULARLY FOR THE FISHING INDUSTRY. Frankly, it is difficult to believe that there is not more to show for all the effort, time, dedication, and hundreds of millions of federal taxpayer dollars spent on this fishery. Based on the Science Center's 2018 sector performance report, "the total gross groundfish revenues earned on all [groundfish vessel] trips in 2015 were at a nine-year low of $51.2 million, a $40.0 million (-43.9%) decrease from 2007 in constant dollars."[336] By 2020, total gross revenues in the fishery were down further to $45.3 million.[337] Some of the most historically important groundfish stocks have now become more valuable as bycatch in the immensely profitable scallop fishery than they are as directed catch in the groundfish fishery.

There are important lessons to be learned from the Carlos Rafael episode. Decisions made by the Council and NMFS in Amendment 16 were not shaped by the catch share design principles captured in Congress's LAPP provisions or by the numerous caveats and principles contained in the social science literature. And later management actions have not modified the sector program in any way to comply with NOAA's Catch Share Policy, MSA national standards, nor to respond to the 2021 Catch Share Review. Significant shortcuts were taken during Amendment 16 with respect to program design that have never been corrected.

Good fisheries management begins with authentic engagement of and partnership with fishermen. Successful fisheries uniformly seem to exhibit high levels of voluntary compliance, cooperation, and problem-solving, all the while managing their fish stocks at sustainable optimum yield levels. These fisheries invest in science, market development, technology, and knowledge transfer to benefit the whole fishery. Successful fisheries welcome transparency and operate with a shared understanding and vision for their future even while individual boats compete for relative advantage. It is CLF's premise that successful fisheries would not tolerate a Carlos Rafael in their midst, let alone allow him to assume leadership responsibilities in the fishery.

Good fisheries management begins with authentic engagement of and partnership with fishermen.

In this report, CLF encourages what remains of the once-powerful groundfish industry to recognize that the fishery is not lost despite significant and persistent negative trends in numerous performance metrics. CLF further contends that the industry, broadly defined to be inclusive of all participants in the fishery, is in the best position to identify and fix the problems that have plagued this fishery for decades. They must still operate within the Council framework, but the long-term future of this fishery may be a function of industry's willingness to cooperate and compromise to define and meet the multiple challenges that lie ahead.

CLF also challenges NMFS to take a stronger leadership role in directing the Council on these issues and to step in if the Council fails to produce programs that meet the basic principles established in the MSA's national standards, NOAA's Catch Share Policy, and the MSA LAPP provisions. NMFS has a statutory duty to ensure that stocks are not overfished and that all the best available science is brought to bear in managing this fishery. NOAA OLE and GC also have pivotal roles to ensure that external enforcement reinforces the goals and objectives of the program and that bad actors like Rafael are swiftly brought to justice, punished in a manner commensurate with the violations, and expeditiously and unceremoniously removed from the fishery.

This report encourages the Science Center to operate within a participatory science framework, following the sound principles recently enunciated by its own leadership. It urges the Science Center to develop a comprehensive science program in partnership with the groundfish fleet and others that can provide real-time data that are necessary to properly anticipate and mitigate the impacts of climate change. There also should be significantly more investments made in the social sciences to allow the sort of granular and longitudinal data collection and analysis that is necessary to achieve compliance with National Standards 4 and 8. Such data and analysis is the only way that NMFS and the Council can be mindful of the real-time economic and social circumstances facing the region's fishing communities while still meeting the mandatory conservation objectives.

Finally, Congress, philanthropic supporters of sustainable fisheries policy, and the NGO community should not abandon this once-legendary fishery. If new pathways toward a sustainable future can be identified and endorsed, the industry will need both financial support and forbearance, where possible, to achieve better outcomes and a brighter future in line with the fishery's potential. It is in everyone's interest to make the Carlos Rafael affair an unfortunate part of this fishery's past, not a foreshadowing of its future.

GLOSSARY

ACE – annual catch entitlement, "Pounds of available catch that can be harvested by a particular sector. Based on the total PSC for the permits that join the sector[,]" https://s3.amazonaws.com/nefmc.org/NEFMC_Glossary_4.05.2021.pdf

ACL – annual catch limit(s), "The maximum amount of fish that can be sustainably caught in a given year. Also known as total allowable catch[,]" https://www.fisheries.noaa.gov/national/sustainable-fisheries/glossary-catch-shares

DAS – days-at-sea, "The total days, including steaming time that a boat spends at sea to fish[,]" https://s3.amazonaws.com/nefmc.org/NEFMC_Glossary_4.05.2021.pdf

FMP – fishery management plan, "Also referred to as a 'plan,' this is a document that describes a fishery and establishes measures to manage it." https://s3.amazonaws.com/nefmc.org/NEFMC_Glossary_4.05.2021.pdf

GB – Georges Bank, used in this report to describe the geographic boundaries of a sub-component of a species stock

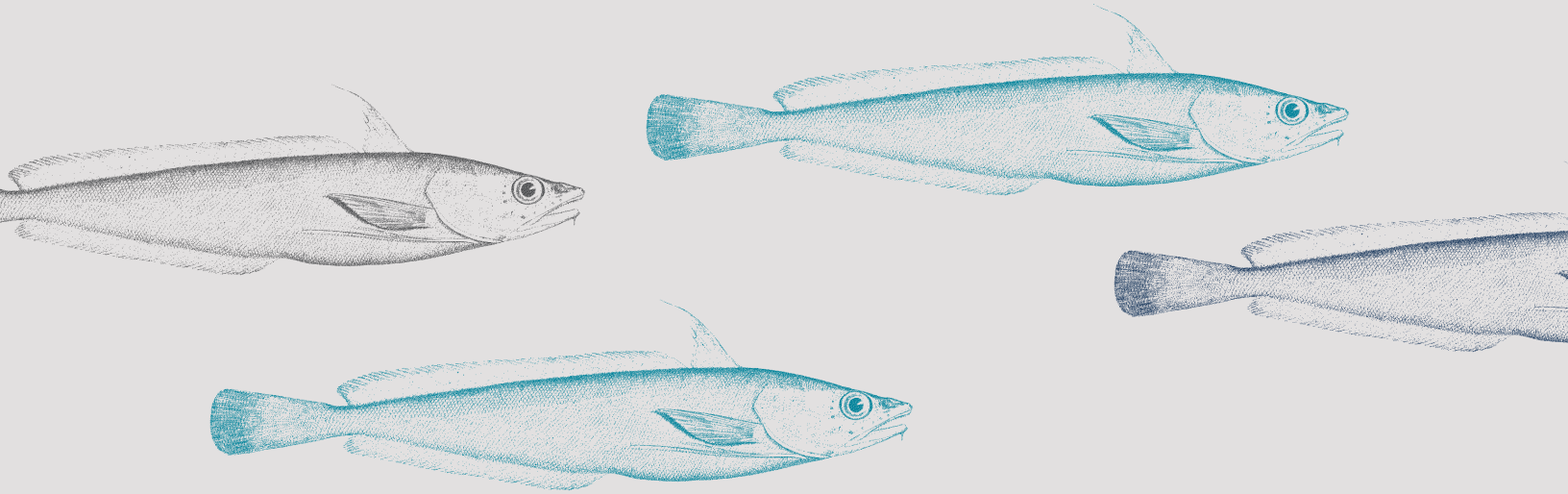
GOM – Gulf of Maine, used in this report to describe the geographic boundaries of a sub-component of a species stock

IFQ – individual fishing quota, "a Federal permit under a limited access system to harvest a quantity of fish ... that may be held for exclusive use by a person[,]" 16 U.S. C § 1802(23)

ITQ – individual transferable quota, a type of IFQ system that allows for transferability of the quota

LAPP – limited access privilege program, 16 U.S.C. § 1853a

LAGC – limited access general category, a component group of fishermen operating under the Atlantic Sea Scallop Fishery Management Program, https://www.nefmc.org/management-plans/scallops



MSA – The Magnuson-Stevens Fishery Conservation and Management Act, our nation's federal fisheries law, as amended, 16 U.S.C. §§ 1801 – 1884

NOVA – Notice of Violation and Assessment of civil penalty, 15 CFR § 904.2

NEFS IX – Northeast Fisheries Sector IX, the groundfish sector to which Rafael belonged

NGO – non-governmental organization

NMFS – National Marine Fisheries Service, an agency located within NOAA, https://www.fisheries.noaa.gov/

NOAA – the National Oceanic and Atmospheric Administration within the Department of Commerce, https://www.noaa.gov/

NOAA OLE – NOAA's Office of Law Enforcement, https://www.fisheries.noaa.gov/about/office-law-enforcement

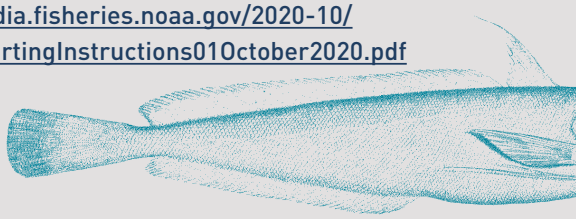
NOAA GC – NOAA's Office of General Counsel, predominantly used in this report to refer to the Enforcement Section of the Office of General Counsel, https://www.gc.noaa.gov/

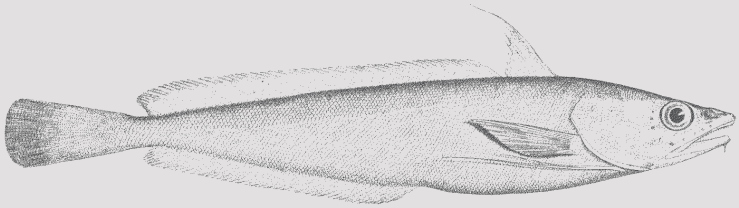
PSC – potential sector contribution, "The percentage of the available catch a limited access permit is entitled to after joining a sector. Based on landings history as defined in Amendment 16. The sum of the PSC's in a sector is multiplied by the groundfish sub-ACL to get the ACE for the sector[,]" https://s3.amazonaws.com/nefmc.org/NEFMC_Glossary_4.05.2021.pdf

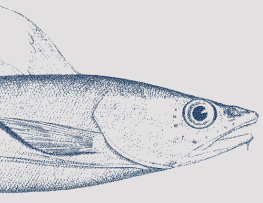
SSC – Science and Statistical Committee, a formal standing committee of regional fishery management councils that provides "ongoing scientific advice for fishery management decisions," 16 U.S.C § 1852(g)(B)

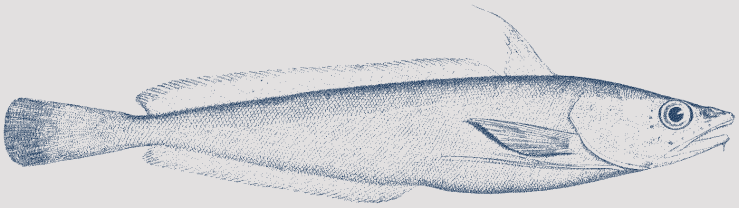
TAC – total allowable catch, also known as annual catch limit, https://www.fisheries.noaa.gov/national/sustainable-fisheries/glossary-catch-shares

VTR – vessel trip report, "required for any trip on a federally permitted vessel when you catch fish … All such fishing activities must be reported, even if no landings are made[,]" https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-10/VTRReportingInstructions01October2020.pdf









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The project's working group members were:

Courtney Carothers, Ph.D.
Robert J. Johnston, Ph.D.
Monica Medina, J.D. *(terminated all engagement with project in March 2021)*
Kevin St. Martin, Ph.D.
Alison Rieser, J.D.
Joshua S. Stoll, Ph.D.
Jon G. Sutinen, Ph.D.

The views in this report and its conclusions and recommendations are solely those of CLF and do not necessarily represent or reflect those of any of the people with whom our staff consulted during the project.

We wish to express particular gratitude to Professors Alison Rieser and Jon G. Sutinen, who helped guide this project from its inception, as well as to Assistant Professor Joshua S. Stoll with the School of Marine Sciences at the University of Maine, who provided critical insights into the state of the fishery through his research and interviews with fishermen and others associated with the fishery. We also thank Jessica Landman, J.D., from the consulting group Council Fire, who held our feet to the fire and provided excellent technical and editorial support throughout the project. And thank you to Caitlin Feehery, Michaella Coughlin, Annika Hellweg, and Malia Gesuale who provided invaluable research and editing assistance.

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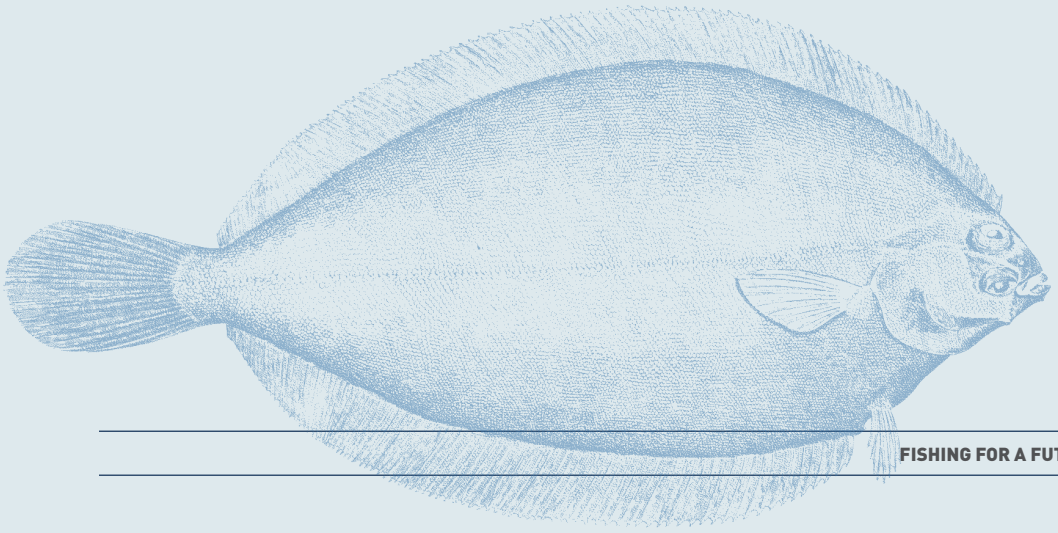

ENDNOTES

1. The New England large mesh groundfish fishery comprises 13 species, including well-known species such as cod, haddock, pollock, and redfish. The 13 species are managed as 20 separate stocks. *See* New England Fishery Management Council, https://www.nefmc.org/.
2. Some contemporary writes and conventions preferentially use the gender-neutral term "fisher" rather than "fisherman." In New England, the vast majority of people in the fishery, regardless of gender, have a strong preference for being identified as "fishermen." CLF follows their preference in this report.
3. As pointed out in this report, there *are* no specific or measurable goals or objectives for the groundfish sector program that can be used to track its performance. This is a major design flaw of the current program; it prevents management adjustments to keep the program on track and shields managers from accountability for the results of the program.
4. "The 'Codfather' was a seafood kingpin until fake Russian mobsters took him down. Now he'll never fish again," *The Washington Post*, August 20, 2019, https://www.washingtonpost.com/nation/2019/08/20/codfather-fishing-russian-mobsters-carlos-rafael/.
5. One article by Brendan Borrell at the time characterized this impact as "The Gloucester Fish War – How a Small Town Destroyed a Decade of Law Enforcement," *Bloomberg Businessweek*, November 22, 2011, https://www.bloomberg.com/news/articles/2011-11-22/the-gloucester-fish-war. Note, however, that many of Rafael's civil and criminal violations pre-dated that shakeup, indicating that the prior program was equally and improperly tolerant of repeat offenders like Rafael.
6. 16 U.S.C. §§ 1801 *et seq*.
7. NMFS is limited to approving, partially approving, or disapproving a fishery management plan (FMP) or amendment by the statute. 16 U.S.C. § 1854(a)(3). If it disapproves or only partially approves an FMP, the existing inconsistent status quo FMP measures remain in place until the relevant council resubmits a new plan that responds to the identified problem. There are no time limits specified in the MSA for a council response, and the prior unacceptable management measures, therefore, could remain in place for years. NMFS, at least in New England, is too often put in a position of trying to determine what the "least bad" option is when reviewing a proposed groundfish FMP amendment, not what is best for the fishery or strictly required by law. Although NMFS could develop its own FMP measures under certain circumstances, *see* 16 U.S.C. § 1854(c)(1)(B), CLF has not found any examples of such actions taken by NMFS over a council's objection. These provisions make the agency's oversight role very limited in practical terms and are a structural weakness of the MSA approach, which already delegates too much legislative discretion to the council system in CLF's view.
8. The "smart compliance" analytical theory and evidence supporting that theory were developed by Professor Jon G. Sutinen of the University of Rhode Island and his colleagues. See, e.g., K. Kuperanand Jon G. Sutinen, "Blue Water Crime: Legitimacy, Deterrence and Compliance in Fisheries," Law and Society Review 32, no. 2 (1998): 309–38, https://doi.org/10.2307/827765; and Jon G. Sutinen and K. Kuperan, "A Socioeconomic Theory of Regulatory Compliance in Fisheries," International Journal of Social Economics 26 (1999): 174–93, https://www.researchgate.net/publication/243461255_A_Socio-Economic_Theory_of_Regulatory_Compliance. Professor Sutinen's first public use of the phrase "smart compliance" to capture this theory occurred in his Larkin Lecture at the University of British Columbia on March 17, 2005.
9. For example, the Science Center completed a performance review of the groundfish sector program that examined fishing years 2007 – 2015 (May 2007 – April 2016). The Council did not approve the report until January 2021, almost five years after the last set of data analyzed in the report was produced.
10. The report emphasizes that the social sciences focused on what NMFS is now referring to as the "human dimensions" are particularly important and overlooked in New England.
11. As was emphasized in a recent Ocean Studies Board report: "[Evaluating the impacts of a catch share program] engage[s] biological, ecological, economic, legal and administrative, anthropological, political, and other disciplines. Successful interdisciplinarity … sometimes requires shared knowledge of and respect for divergent epistemologies and consideration of different standards of evidence." "The Use of Limited Access Privilege Programs in Mixed-Use Fisheries," National Academies of Sciences, Engineering, and Medicine (Washington DC), 2021, 5, prepublication version available at https://www.nap.edu/catalog/26186/the-use-of-limited-access-privilege-programs-in-mixed-use-fisheries.
12. For more details on the Rafael criminal episode, see Brendan Borrell, "The Last Trial of the Codfather," Hakai Magazine, January 10, 2017, https://www.hakaimagazine.com/features/last-trial-codfather/.
13. As we use the term "enforcement program" in this report, we refer to the entire enforcement and compliance apparatus and program — everything from the initial reporting, investigation, or detection of a potential legal violation to the final civil or criminal prosecution. Such a program also contemplates strategic and informed relationships between all the enforcement partners to maximize the effectiveness of the program. That would include NOAA OLE, NOAA General Counsel (GC), state enforcement agencies operating under Joint Enforcement Agreements, the U.S. Coast Guard, and NMFS.
14. Skeletal remains of codfish measuring some 5–6 feet dating back some 2,500 years are routinely found in middens on the Maine coast. Jeremy B. C. Jackson, "What was Natural in Coastal Oceans?" *Proceedings of the National Academy of Sciences* 98, no. 10 (2001): 5411–18, https://doi.org/10.1073/pnas.091092898.
15. Christopher Paul Magra, "How the Codfish Started the American Revolution," New England Historical Society, Updated 2021, https://www.newenglandhistoricalsociety.com/how-codfish-started-the-american-revolution/.
16. Jack Sullivan, "'They That Go Down to the Sea in Ships,'" *CommonWealth Magazine*, December 7, 2017, https://commonwealthmagazine.org/the-download/go-sea-ships/.
17. 16 U.S.C. §§ 1801 *et seq*.
18. This fishery conservation zone later assumed its current title of "exclusive economic zone" by executive order.

19. 16 U.S.C. § 1851(a)(1); optimum yield "means the amount of fish which — (A) will provide the greatest overall benefit to the Nation … taking into account the protection of marine ecosystems; (B) is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and (C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery." *Id.* § 1802(33).
20. *Id*. § 1851(a)(2),(4),(8).
21. William R. Rogalski, "The Unique Federalism of the Regional Councils Under the Fishery Conservation and Management Act of 1976," B.C. *Environmental Affairs Law Review* 9, no. 1 (1980): 163–203, https://lawdigitalcommons.bc.edu/ealr/vol9/iss1/11/.
22. "A Brief History of the Groundfishing Industry of New England," NOAA Fisheries, https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/brief-history-groundfishing-industry-new-england.
23. One expert reported that in 1977, only 20 percent of the Gloucester groundfish skippers were obeying the regulations. Margaret E. Dewar, *Industry in Trouble: The Federal Government and the New England Fisheries* (Philadelphia: Temple University Press, 1983); *see also* Matthew McKenzie, *Breaking the Banks: Representations and Realities in New England Fisheries, 1866-1966* (Boston: University of Massachusetts Press, 2018), for a discussion of some of the historic patterns of non-compliance in this fishery.
24. Spencer Apollonio and J. J. Dykstra, *An Enormous, Immensely Complicated Intervention: Groundfish, The New England Fishery Management Council, and the World Fisheries Crisis* (E-BookTime, LLC, 2008), 54.
25. "Fishery Management Plan, Environmental Impact Statement, and Initial Regulatory Flexibility Analysis for the Northeast Multispecies Fishery," NEFMC, 1985, https://s3.amazonaws.com/nefmc.org/MultiSpecies-FMP.pdf.
26. "Amendment 5 to the Northeast Multispecies Fishery Management Plan, Vol. I," NEFMC, 1993, https://s3.amazonaws.com/nefmc.org/Amend5-with_OCR.pdf, 25.
27. *Id.* at 25, 33, and 39.
28. *E.g.*, "Framework Adjustment 20 to the Northeast Multispecies Fishery Management Plan," NEFMC, 1997, https://s3.amazonaws.com/nefmc.org/final_fw_20.pdf.
29. We use the term "quota" here and elsewhere in this report even though fishermen in the groundfish sector program are not technically allocated quota but rather a potential sector contribution (PSC). PSC is individually held by a permit owner and can be transferred to others in the fishery, but it can only be fished if the permit is enrolled in a sector as part of that sector's annual catch entitlement (ACE). Also, it cannot be individually fished except as re-allocated to the fishing operation by the sector. Under most sector operating rules, a fisherman's PSC functions as his quota.
30. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Northeast (NE) Multispecies Fishery; Amendment 16, 75 Fed. Reg. 18,262 (April 9, 2010).
31. "Overfishing and Overfished Stocks as of March 31, 2021," NOAA Fisheries, https://media.fisheries.noaa.gov/2021-04/FSSI%20Quarterly%20Map_Q1_2021.pdf?null.
32. NEFSC, "NE Multispecies – Large Mesh/2020."
33. The company's website states that "the best seafood comes from a better seafood company — one that brings transparency, openness, and unflagging honesty to everything we do." Blue Harvest Fisheries, https://www.blueharvestfisheries.com/.
34. NOAA Fisheries, "Overfishing and Overfished Stocks as of March 31, 2021."
35. Gulf of Maine cod is reaching the end of its *second* rebuilding period.
36. NMFS formally notified the Council on August 13, 2021 that there has been inadequate progress toward rebuilding Gulf of Maine cod. *See* 16 U.S.C. § 1854(e)(7). Gulf of Maine cod has now had two 10-year rebuilding plans that have failed.
37. Such options include stopping the directed fishing of cod, gear modifications, larger fishery closed areas to reduce cod bycatch, meaningful essential fish habitat protections, and additional spawning protections. CLF filed a petition for rulemaking with NMFS in February 2020 with respect to the failures to rebuild these cod stocks and stop persistent overfishing. The petition is available here: https://www.clf.org/wp-content/uploads/2020/02/CLF-Petition-for-Rulemaking-Atlantic-Cod_FINAL.pdf.
38. *See* "Table 64, Northeast Multispecies Fishery Management Plan: Amendment 23 Including a Final Environmental Impact Statement," NEFMC, 2021, https://s3.amazonaws.com/nefmc.org/210430_Groundfish_A23_FEIS_preliminary_submission.pdf, 239.
39. The Council adopted Amendment 23 to the Northeast Multispecies FMP in September 2020. NMFS must still complete the rulemaking process. For more details on Amendment 23, *see* "Plan Amendment, Amendment 23," NEFMC, https://www.nefmc.org/library/amendment-23.
40. "RODA Statement on Recent Developments in Southern New England Offshore Wind," RODA, March 3, 2021, https://rodafisheries.org/southern-new-england-offshore-wind/.
41. It is CLF's view that where offshore wind projects have properly considered and addressed fishing concerns at the outset, coexistence between the wind industry and the fishing industry is possible.
42. *See* "NOAA Blue Economy Strategic Plan 2021-2025," NOAA, January 19, 2021, https://aambpublicoceanservice.blob.core.windows.net/oceanserviceprod/economy/Blue-Economy%20Strategic-Plan.pdf.
43. *See* Spencer Apollonio (quoting from Margaret Dewar's 1983 classic *Industry In Trouble*).
44. Heather Cronin and Jonathan Labaree, "Community Perspective: A Special Report to NEFMC on 2019 Port Meetings for its Review of Sector Management," Gulf of Maine Research Institute, March 2020, https://s3.amazonaws.com/nefmc.org/1b_Final_GMRI-Sector-Review-Report-with-Appendices_04072020.pdf, 15.
45. *Id.*
46. "Catch Shares," NOAA Fisheries, https://www.fisheries.noaa.gov/national/laws-and-policies/catch-shares.

47. National Oceanic & Atmospheric Administration, "National Marine Fisheries Service Policy 01-121: Catch Share Policy," January 2017, https://media.fisheries.noaa.gov/dam-migration/01-121.pdf, 2.

48. This project was not developed as a critique of the catch share management approach to fishery management, and CLF does not have an ideological position on the topic. Although catch share programs have been evaluated as providing positive fishery management benefits by many, e.g., Anna B. Birkenbach, David J. Kaczan, and Martin D. Smith, "Catch Shares Slow the Race to Fish," *Nature* (2017), https://www.nature.com/articles/nature21728, and are actively promoted by NMFS, there are also numerous and well-supported critiques of these programs. For example, see Seth Macinko and Daniel Bromley, "Property and Fisheries for the Twenty-First Century: Seeking Coherence from Legal and Economic Doctrine," *Vermont Law Review* 28 (2004): 623, http://sethmacinko.com/wp-content/uploads/2016/03/VLR-Macinko_Bromley.pdf. This literature is part of a healthy and overdue debate on the nature of the benefits that some say flow from catch share programs, particularly the "ownership-promotes-stewardship thesis." *See, e.g.*, Rachel Donkersloot and Courtney Carothers, "Beyond Privatization Rethinking Fisheries Stewardship North Pacific – 2017," Documents from Environmental Organizations, 2017, https://digitalcommons.library.umaine.edu/maine_env_organizations/237, at 237. The authors further argue that many of those "privatization" programs can "create a host of equity issues and contribute to the alienation of fishing rights from long standing fishing communities and cultures." *Id.* at 254.

49. *See* NOAA Fisheries, "Catch Shares."

50. *See* Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Northeast (NE) Multispecies Fishery; Amendment 13, 69 Fed. Reg. 22,906 (April 27, 2004).

51. Laura Taylor Singer, "The Development of Catch Shares: Lessons Learned from New England," Gulf of Maine Research Institute, April 2011, http://157.230.66.170/sites/default/files/resource/the_development_of_catch_shares.pdf, 18. Ms. Singer's detailed history of the development of the catch share program is an excellent resource for many of the details and perspectives on the program's development.

52. *See* Amendment 13, 69 Fed. Reg. 22,906.

53. "Final Amendment 13 to the Northeast Multispecies Fishery Management Plan Including a Final Supplemental Environmental Impact Statement," NEFMC, 2003, https://s3.amazonaws.com/nefmc.org/Final-Amendment-13-SEISVol.-I-II.pdf, I-75.

54. Amendment 13, 69 Fed. Reg. at 22,914.; indirect evidence of stewardship is suggested by reduced interannual variability in ecological indicators such as exploitation and discard rates; see Timothy E. Essington, "Ecological Indicators Display Reduced Variation in North American Catch Share Fisheries," *Proceedings of the National Academy of Sciences of the United States of America* 107, no. 2 (2010): 754–59, https://doi.org/10.1073/pnas.0907252107.

55. "Final Amendment 16 to the Northeast Multispecies Fishery Management Plan Including a Environmental Impact Statement," NEFMC, October 16, 2009, http://archive.nefmc.org/nemulti/planamen/Amend%2016/final%20amendment%2016/091016_Final_Amendment_16.pdf, 62.

56. *Id.* at 63-65.

57. 16 U.S.C. § 1853 note (1).

58. "[T]he 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, ITQ management, party/charter limited entry, and approval of any new sector proposals or adjustments or modifications to existing sectors. Amendment 17 should also develop and establish a complete allocation system for the groundfish fishery. That Amendment will be developed following the completion of work on Amendment 16." Singer, "Development of Catch Shares," 35.

59. In its approval of Amendment 16, NMFS acknowledged that the one of the Council's primary design approaches in developing the Amendment 16 groundfish sector program management measures was to remove barriers to sector formation. For example, "the existing [Cape Cod] sectors were originally restricted to fishing in specific areas surrounding the communities in which they were based. The Council did not mandate similar area-based restrictions in Amendment 16 to provide the maximum flexibility for the formation of sectors." Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. 18,262, 18,292 (April 9, 2010). A similar rationale was advanced in explanation of the decision to eliminate Amendment 13's quota caps. "While Amendment 13 specifically restricted the size of an individual sector allocation to no more than 20 percent of the yearly TAC for any regulated species or ocean pout stock, this action eliminates that restriction to further facilitate participation in sectors." Amendment 16, 75 Fed. Reg. at 18,276.

60. For the common pool program, Amendment 16 prescribed significant cuts in the allocated days-at-sea, reduced possession limits of various stocks, new restricted gear areas, and changes in days-at-sea calculations that reduced flexibility especially for inshore boats. Amendment 16 FEIS, 133–35.

61. "In FY2012, sector vessels accounted for 68% of all landings, 99% of groundfish landings, and 62% of non-groundfish landings." "Overview of the Northeast Multispecies Fishery Management Plan," NEFMC and NMFS, 2014, http://archive.nefmc.org/nemulti/cte_mtg_docs/2014/140612-13%20Peer%20Review/Doc_3_Groundfish%20FMP%20overview.pdf, 66.

62. Daniel S. Holland et al., "A Survey of Social Capital and Attitudes toward Management in the New England Groundfish Fishery," Northeast Fisheries Science Center Ref. Doc. 10–12, July 2010, 7.

63. Amendment 16, 75 Fed. Reg. at 18,275.

64. *Id.*

65. *Id.* at 18,276–18,277. Catch can only be allocated to sectors, not individual fishermen. Each groundfish permit that is enrolled in a sector has an associated "potential sector contribution," which determines the allocation a sector would receive if the permit were enrolled.

66. *Id.* at 18,277.

67. *Id.*

68. *Id.* CLF was not able to find any situation in the groundfish sector program where this joint and several liability mechanism has come into play. Rafael's sector, but not its members, ultimately had to cover the catch overages associated with Rafael's illegal activities, although Rafael's quota was used for that purpose. For a theoretical discussion of the arguments for the increased compliance thought to be associated with joint and several liability provisions as well as a discussion of the cautions with respect to relying on such measures, *see* Manuel Bellanger et al., "Incentive Effect of Joint and Several Liability in Fishery Cooperatives on Regulatory Compliance," *Fish and Fisheries* (July, 2019): 715-729, https://archimer.ifremer.fr/doc/00495/60667/.
69. *See* Amendment 16, 75 Fed. Reg. at 18,275. Sectors must also comply with monitoring standards, including coverage rates, specified by NMFS.
70. NMFS acknowledged the importance of the excess accumulation and allocation issues and committed to future action on the issue: "NMFS recognizes the potential legitimate concerns raised by the public, and has pledged in its letter to the Council announcing partial approval of Amendment 16, to work with the Council in addressing these potential problems of the incidental allocative effects of the sector program as well as individual permit holders acquiring excessive control of fishing privileges." Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. at 18,296.
71. *See* discussion below at p. 48.
72. NOAA's national Catch Share Policy, which will be further discussed below, requires performance reviews every five years for catch share programs such as the groundfish sector program. *See* NMFS Procedure 01-121-01 (requiring periodic reviews of the sector program).
73. "Northeast Multispecies (Groundfish) Catch Share Review," NEFMC, May 2021, https://s3.amazonaws.com/nefmc.org/Sector-Program-Review_Final-May2021.pdf. The review largely relied on social, economic, and biological data and analyses that have been used to inform recent Council actions.
74. Catch Share Policy 2017, 22 (emphasis omitted).
75. *See* 2021 Catch Share Review at Appendix 8 for a discussion of the sources of the data used in the review.
76. Groundfish fishing years run from May 1 to April 30, so the review spanned May 1, 2007, to April 30, 2016.
77. The Gulf of Maine Research Institute (GMRI) conducted port meetings with the industry in 2019 to "provide[] a forum for stakeholders to share their perspectives, experiences, and on-the-water observations of changes to the fishery and to their communities since the implementation of the sector management system." Cronin, "Community Perspective: A Special Report," 2.
78. The impacts were not equally distributed in the fleet: The two larger classes of groundfish vessels earned higher average revenues, whereas the two smaller classes had lower average revenues post sectors.
79. *See* 2021 Catch Share Review, 60–61.
80. 2021 Catch Share Review, 112; NOAA Fisheries, "Overfishing and Overfished Stocks as of March 31, 2021."
81. 2021 Catch Share Review, 66–7. The second crew survey focused only on crew that could be identified in the most active groundfish ports. Such a survey, almost by definition, would not capture crew no longer employed in the fishery.
82. *Id.* at 167. This drop in fatalities was coincident with the expansion of the groundfish sector program, but no causal relationship was identified linking the two.
83. *Id.* at 85.
84. *Id.* at 88–9.
85. NEFSC, "NE Multispecies – Large Mesh/2020."
86. "Engagement" is a term used to measure the importance of commercial fishing in a community: "It is a measure of the presence of groundfish sector fishing in a community through fishing activity including pounds, value, permits, and dealers." Lisa L. Colbern et al., "Community Participation in U.S. Catch Share Programs," U.S. Dept. of Commerce, NOAA, NOAA Technical Memorandum NMFS-F/SPO-179 (2017), https://spo.nmfs.noaa.gov/sites/default/files/TMSPO179_0.pdf, 38.
87. NEFSC, "NE Multispecies – Large Mesh/2020."
88. One stock's overfished status is unknown and another stock's overfishing status is unknown.
89. NEFSC, "NE Multispecies – Large Mesh/2020."
90. CLF uses "sociocultural" in this report "to indicate the aspects of human dimensions of fisheries that relate to the 'who' of fishing – demographics, fishery dependence, safety, stakeholder involvement, equity, cultural values, and the well-being of persons, families, and fishing communities...." Lindsey Williams et al., "Consideration of Social Information in New England Fisheries Management: Report on 2019 Interviews with [NEFMC] Members," January 2020, https://s3.amazonaws.com/nefmc.org/10b_NEFMC_SocialScienceUseProject_FinalReport_011720.pdf, 4.
91. Steven B. Scyphers et al., "Chronic social disruption following a systemic fishery failure," PNAS 116, no. 46 (November 12, 2019): 22912, https://doi.org/10.1073/pnas.1913914116.
92. Cronin, "Community Perspective: A Special Report," 9.
93. "Groundfish Catch Share Comments," NEFMC, 2019, https://s3.amazonaws.com/nefmc.org/All-Catch-Share-Comments-sept-27-2019.pdf, 108 (emphasis removed).
94. *Id.* at 122.
95. There is abundant and thought-provoking academic literature challenging many, if not all, the policy arguments offered in support of catch share programs. Many of these programs have had often devastating impacts on communities, tribes, and new entrants. *See* note 48 above.
96. "Sharing the Fish: Toward a National Policy on Individual Fishing Quotas," National Research Council (Washington, DC), 1999, https://www.researchgate.net/publication/233987513_Sharing_the_Fish_Toward_A_National_Policy_on_Individual_Fishing_Quotas.
97. 1999 National Research Council Report, 4.
98. *Id.*

99. *Id.* at 197 ("Goals and objectives are central to IFQ program design. If economic efficiency and rapid downsizing of a fleet are the major objectives, quota shares should be freely transferable, be as divisible as possible, and have long-term tenure. If other major design objectives are paramount or there are conflicting objectives, these central design features may have to be changed.") (emphasis added).
100. *Id.*
101. *Id.* at 197–198.
102. *See* "An Ocean Blueprint for the 21st Century, Final Report," U.S. Commission on Ocean Policy (Washington, DC), 2004, https://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/000_ocean_full_report.pdf; (The Commission used the term "dedicated access programs" rather than catch share programs).
103. *Id.* at 288.
104. *Id.* at 290.
105. *See* 16 U.S.C. § 1853a(c)(1)(A)–(C). For a detailed examination of the context for and the Congressional purposes behind the 2006 MSA LAPP provisions, *see* 2021 National Academy of Science, Engineering, and Medicine Report, 29-40.
106. Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Pub. L. 109-479, 120 Stat 3575 (2007). The law defines a limited access privilege to be "(A) [] a Federal permit, issued as part of a limited access system... to harvest a quantity of fish expressed by a unit or units representing a portion of the total allowable catch of the fishery that may be received or held for exclusive use by a person; and (B) includes an individual fishing quota; but (C) does not include community development quotas...." 16 U.S.C. § 1802(26).
107. The Georges Bank Fixed Gear Sector filed an amicus brief in support of defendant National Marine Fisheries Service.
108. *City of New Bedford v. Locke*, 2011 WL 2636863, at *2 (D. Mass. June 30, 2011), *aff'd sub nom. Lovgren v. Locke*, 701 F.3d 5 (1st Cir. 2012). CLF intervened in this litigation on the side of the government, supporting the agency's legal interpretation of the LAPP provisions in the MSA as they applied to the groundfish sector program.
109. "The [MSA] LAPP provisions ... represent Congress' attempt to design an IFQ program that maintains the economic advantages of IFQs while recognizing the need for equity and fairness in allocation of individual privileges, the importance of including social and cultural frameworks in their design and implementation, and the need to address question regarding transferability and new entrants into the fisheries." 2021 National Academy of Sciences, Engineering, and Medicine Report, 3.
110. The groundfish sector program is, nonetheless, a limited access system, as defined by the MSA, 16 U.S.C. § 1802(27). As such, the Council and NMFS should have required Amendment 16 to specifically take a number of social and community issues into account:(A) present participation in the fishery;(B) historical fishing practices in, and dependence on, the fishery;(C) the economics of the fishery;(D) the capability of fishing vessels used in the fishery to engage in other fisheries;(E) the cultural and social framework relevant to the fishery and any affected fishing communities; [and](F) the fair and equitable distribution of access privileges in the fishery.

    16 U.S.C. § 1853(b)(6). Few of these considerations entered into the Amendment 16 debate and, as is pointed out later in this report, the Council and NMFS did not even have the sociocultural data available to probe these issues beyond superficial observations.
111. 16 U.S.C. § 1853a(c)(1)(F).
112. *Id.* § 1853a(c)(1)(G).
113. *Id.* § 1853a(c)(1)(H).
114. *Id.* § 1853a(c)(5)(D).
115. 16 U.S.C. § 1853a(c)(6)(D). Congress did not define who such "participants" might include, but it would certainly include non-owner captains, crew, and, potentially, some shoreside infrastructure owners.
116. *Id.* § 1853a(c)(6)(D)(vi). Sectors already existed in New England under the authority of Amendment 13. *City of New Bedford v. Locke*, 2011 WL 2636863, at *2 (D. Mass. 2011), *aff'd sub nom. Lovgren v. Locke*, 701 F.3d 5 (1st Cir. 2012).
117. See Daniel S. Holland et al., "U.S. Catch Share Markets: A Review of Characteristics and Data Availability," NOAA Technical Memorandum NMFS-F/SPO-145, 2014, https://spo.nmfs.noaa.gov/sites/default/files/TM145_0.pdf, 48–49.
118. 16 U.S.C. § 1853a.
119. National Oceanic & Atmospheric Administration, "NOAA Catch Share Policy," 2010, https://static1.squarespace.com/static/56c65ea3f2b77e3a78d3441e/t/56ccf69762cd94e237371f32/1456273047389/Tab+08b_Attach+1_NOAACatchSharePolicy.pdf. The current, virtually identical version of the policy is identified as NMFS Policy 01-0121 (January 2017).
120. Catch Share Policy 2010, ii.
121. *Id.* at iii.
122. *Id.*
123. *Id.* at 1.
124. 16 U.S.C. § 1853a(c)(1)(C).
125. 1999 National Research Council Report, 11. See also 2021 National Academy of Sciences, Engineering, and Medicine Report, 5. ("LAPPs constitute just one component of larger fishery management programs. Their effectiveness and impacts are significantly dependent on other elements, including biologically appropriate total allowable catch limits and improvements in monitoring and enforcement within the management system....").
126. *E.g.,* Dennis King and Jon S. Sutinen, "Rational Noncompliance and the Liquidation of Northeast Groundfish Resources," *Journal of Marine Policy* (June 2009), https://doi.org/10.1016/j.marpol.2009.04.023; Dennis King, "Enforcement and Compliance in U.S. Commercial Fisheries: Results from Two Recent Studies," Lenfest Ocean Program, August 2010, https://www.lenfestocean.org/-/media/legacy/lenfest/pdfs/king_enforcement_comparison_paper_2010.pdf; Jon S. Sutinen and K. Kuperan, "A Socioeconomic Theory of Regulatory Compliance in Fisheries," 174–93; and Jon S. Sutinen et al., "Measuring and Explaining Noncompliance in Federally Managed Fisheries," *passim*, 21 *Ocean Development & International Law* (1990): 335, https://www.researchgate.net/publication/233167796_Measuring_and_explaining_noncompliance_in_Federally_managed_fisheries. *See also* Daniel S. Holland et al., "Evolution of Social Capital and Economic Performance in New England Harvest Cooperatives,"

Marine Resource Economics (2015), https://www.researchgate.net/publication/280490576_Evolution_of_Social_Capital_and_Economic_Performance_in_New_England_Harvest_Cooperatives.

127. *E.g.*, Jon S. Sutinen et al., "Measuring and Explaining Noncompliance in Federally Managed Fisheries," 341–42.

128. This critical factor in understanding voluntary compliance has long been identified in numerous publications. *E.g.*, Jon S. Sutinen and K. Kuperan, "A Socioeconomic Theory of Regulatory Compliance in Fisheries" (based on earlier versions dating back to 1994).

129. The term "smart compliance policy" is meant to describe the analytical framework that first appeared in the following publications: Kuperan and Sutinen, "Blue Water Crime," 309–38; and Sutinen and Kuperan, "A Socioeconomic Theory of Regulatory Compliance in Fisheries." The first public use of the term "smart compliance" was in Jon Sutinen's Larkin Lecture at the University of British Columbia, March 17, 2005. The concept is also referenced in a 2006 handbook by Jon G. Sutinen, Stephen B. Olsen et al., *A Handbook on Governance and Socioeconomics of Large Marine Ecosystems*, University of Rhode Island (2006), 56–60; *see also* King and Sutinen, "Rational Noncompliance."

130. These fisheries were also chosen for comparison in the comprehensive reporting project: "Measuring the Effects of Catch Shares: Project Overview," MRAG Americas, Inc., https://catchshareindicators.org/about/project-overview/: "We selected these two catch share programs because they were established recently in fisheries with high political, economic, and ecological importance. Both were implemented in multispecies groundfish fisheries in which some species or stocks had been declared overfished under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). However, the two catch share programs differ substantially in their design, making the results of this study especially informative."

131. "Measuring the Effects of Catch Shares: Fishery Background and Timeline," MRAG Americas, Inc., https://catchshareindicators.org/westcoast/history-and-timeline/.

132. *Id.*; Fisheries Off West Coast States; Pacific Coast Groundfish Fishery Management Plan; Amendments 20 and 21; Trawl Rationalization Program Amendment 20 Proposed Rule, 75 Fed. Reg. 32,994, 32,996 (June 10, 2010) ("Amendment 20 Proposed Rule").

133. The identified problems included an uncertain bycatch rate and lack of incentives to limit bycatch; lost fishing opportunities to target healthy stocks; inability to manage for the fleet's diversity; inability to have quick, responsive management; and uncertainty faced by fishing communities. Amendment 20 Proposed Rule, 75 Fed. Reg. at 32,996.

134. "Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery Final Environmental Impact Statement including Regulatory Impact Review and Initial Regulatory Impact Analysis," Pacific Fishery Management Council, June 2010, https://repository.library.noaa.gov/view/noaa/3857, 15. ("Pacific Amendment 20 FEIS.").

135. Fisheries Off West Coast States; Pacific Coast Groundfish Fishery Management Plan; Amendments 20 and 21; Trawl Rationalization Program, 75 Fed. Reg. 60,868 (October 1, 2010); Trawl Rationalization Program, 75 Fed. Reg. 78,344 (December 15, 2010). The Pacific Council's action was divided into two amendments. Amendment 20 established the trawl rationalization program and Amendment 21 established allocations for participants. For simplicity, we refer to them collectively as "Amendment 20/21."

136. Amendment 20 Proposed Rule, 75 Fed. Reg. 32,994, 32,996, 32,997 (June 10, 2010).

137. Private conversations with former regional NMFS officials.

138. "Advisory subpanels represent the commercial and recreational fishing industry, tribes, the public, and conservation interests. They advise the Council on fishery management issues (such as annual management measures, fishery management plans, and amendments) and provide input into fishery management planning. Members are selected by a Council vote and serve three-year terms." "Fact Sheet: Advisory bodies," Pacific Fishery Management Council, https://www.pcouncil.org/fact-sheet-advisory-bodies/.

139. Pacific Amendment 20 FEIS at 18, 19–22. The Pacific Council established the Trawl Individual Quota (TIQ) Committee, the Groundfish Allocation Committee, Ad Hoc TIQ Analytical Team, Ad Hoc TIQ Enforcement Group, Ad Hoc Trawl Rationalization Tracking and Monitoring Committee, and Ad Hoc TIQ Independent Experts Panel. Between September 2003 and June 2010, the Pacific Council and these committees met a collective 61 times.

140. Private conversation with former regional NMFS officials. This alignment, apparently, continued through to the Pacific Council/NMFS relationship. As one former NMFS official put it in a conversation with CLF, on most management issues, "there was no daylight between NMFS and the [Pacific] Council."

141. Amendment 20 Proposed Rule, 75 Fed. Reg. at 32,999.

142. As an IFQ program, a fishermen could directly fish her quota; in the New England program, the PSC or "quota" had to be fished through a sector.

143. Pacific Coast Groundfish Fishery Management Plan, Appendix E (Description of Trawl Rationalization (Catch Shares) Program), E2-3 (June 2017).

144. Amendment 20 Proposed Rule, 75 Fed. Reg. at 32,999.

145. Pacific Coast Groundfish Fishery Management Plan, Appendix E, E-2.

146. Private conversation with fishing industry representative and Pacific Council member.

147. "California Groundfish Project," The Nature Conservancy, https://www.nature.org/en-us/about-us/where-we-work/united-states/california/stories-in-california/california-groundfish-project/.

148. "[A]t a time when the impacts of a new regulatory IFQ program were uncertain, the risk pool was designed and implemented to address the potential financial impacts of bycatch risk, and keep fishing operations active." Kate Kauer et al., "Reducing Bycatch through a Risk Pool: A Case Study of the U.S. West Coast Groundfish Fishery." *Marine Policy* 96 (2018): 90–9, https://doi.org/10.1016/j.marpol.2018.08.008.

149. *Id.*

150. The Nature Conservancy, "California Groundfish Project."

151. Kauer et al., "Reducing Bycatch through a Risk Pool," revealed that between 2011 and 2015, quota utilization for overfished stocks within the risk pool was less than that outside the risk pool. Although bycatch rates for both risk pool vessels and general IFQ vessels was low (below 1 percent), risk pool vessels had reduced bycatch more than the non-risk pool vessels had.
152. "West Coast Groundfish Trawl Catch Share Program: Five-year Review," PFMC and NMFS, approved by the Pacific Fishery Management Council, November 16, 2017, https://www.pcouncil.org/documents/2017/01/trawl-catch-share-review-main-document.pdf/, 421. ("To ease the transition to 100 percent coverage, a Federal subsidy was implemented in 2011 ($328 per day), which decreased each subsequent year (ending at $108 per day in 2015). Starting in 2016, vessel operators began paying the full cost for their monitoring. The average monitoring cost (observer costs and electronic monitoring) was $402 per day in 2015, which was about 4 percent of the revenue in 2015.").
153. Amendment 20 Proposed Rule, 75 Fed. Reg. at 32,997.
154. Pacific Amendment 20 FEIS, 52.
155. Private conversation with Pacific Council member and fishing industry representative.
156. Pacific Coast Groundfish Fishery Management Plan, Appendix E, Table E-2.
157. *Id.* The aggregate limit was for non-whiting species only.
158. Private conversation with NGO participant in the program's development.
159. Pacific Coast Groundfish Fishery Management Plan, Appendix E, Table E-2.
160. *See* p. 48.
161. Amendment 20 Proposed Rule, 75 Fed. Reg. at 53,382-53,384.
162. For an example of the type of information collected by the program and the analysis that is possible with that data, see Erin Steiner, "Economic Data Collection Program, Catcher Vessel Report (2009 – 2016)," Northwest Science Center, NMFS, May 29, 2019, https://media.fisheries.noaa.gov/dam-migration/edc_catcher_vessel_report_may_2019.pdf.
163. Amanda Warlick, Erin Steiner, and Marie Guldin, "History of the West Coast Groundfish Trawl Fishery: Tracking Socioeconomic Characteristics Across Different Management Policies in a Multispecies Fishery," *Marine Policy* 93 (2018): 9–21, https://doi.org/10.1016/j.marpol.2018.03.014.
164. The IFQ program was established as the management system for the shore-based sector only (whiting and non-whiting), whereas co-ops were established for the at-sea processors and catcher processor vessels that harvest mostly whiting. "Fact Sheet: Trawl Catch Shares," Pacific Fishery Management Council, January 20, 2021, https://www.pcouncil.org/fact-sheet-trawl-catch-shares/.
165. PFMC, West Coast Five Year Review, ES-7.
166. *Id.* at ES-7–ES-8. "Discards of six of the seven historically overfished rockfish species dropped at least 90 percent after implementation of Amendment 20."
167. Holland, "An Analysis of the Pacific Groundfish Trawl Individual Fishing Quota (IFQ) Quota Pound (QP) Market Through 2019," 2.
168. PFMC, West Coast Five Year Review, ES–4.
169. *Id.* at 22.
170. *Id.* at ES-5.
171. 2021 Catch Share Review, v.
172. PFMC, West Coast Five Year Review, 442.
173. *Id.* at 440.
174. *Id.* at 441.
175. Private conversation with former NMFS officials.
176. Transcript of IRS sting operation, Government's Sentencing Memorandum, at 2 (September 20, 2017) (available from CLF).
177. Although there are many other ways to produce such a fishery, one way to determine success would be a positive response to an industry referendum, as set out in section 303A of the MSA. For all its challenges and uncertainties, such a referendum may be the most respectful, democratic, and comprehensive way to measure support for any catch share program.
178. *E.g.,* 2021 Catch Share Review, 2. Amendment 16 has six goals and ten objectives for how to manage the fishery in accordance with the MSA, but these goals and objectives were unchanged from Amendment 13 (implemented in 2004) despite the worsening condition of the fishery and, again, were not specific to the groundfish sector program.
179. 16 U.S.C § 1851(A)(4) & (8).
180. *See* Final Rule Amendment 21-4 to the Pacific Coast Groundfish Fishery Management Plan, 84 Fed. Reg. 68,799 (December 17, 2019).
181. Olsen et al., *A Handbook on Governance and Socioeconomics of Large Marine Ecosystems*, 52 (citations omitted).
182. *See* public comments submitted for 2021 Catch Share Review and results of the multi-port survey conducted by GMRI.
183. Cronin, "Community Perspective: A Special Report," 21.
184. Amendment 16 FEIS (2009) at 9. An exception was made for participants in the existing Cape Cod sectors, who were allowed to keep the qualifying period for their allocation as 1996–2001, as it was when those sectors were first set up.
185. *Id.* at 133.
186. There are no "property rights" associated with that PSC or ACE. Even the fishing privileges authorized under the LAPP provisions in the MSA for IFQ programs, for example, do not operate as a property right. Rather, they are "considered a grant of permission to the holder of the limited access privilege or quota share to engage in activities permitted by such limited access privilege or quota share." 16 U.S.C. § 1853a(b)(5).
187. Holland et al., "A Survey of Social Capital and Attitudes toward Management in the New England Groundfish Fishery," 7.
188. Cronin, "Community Perspective: A Special Report," 5.
189. *Id.* at 4.
190. *Id.*

191. To name just one set of fishery-independent factors, numerous river-run dams have been removed in the Gulf of Maine in the past 20 years, restoring anadromous prey species, such as river herring, that some researchers believe may be key to rebuilding depleted historic populations of coastally spawning groundfish such as cod. See John Lichter and Ted Ames, "Reaching into the Past for Future Resiliency: Recovery Efforts in Maine Rivers and Coastal Areas," *Maine Policy Review* 21 (Winter/Spring 2012): 96–102, https://digitalcommons.library.umaine.edu/mpr/vol21/iss1/14/. In one sense, these fishermen reap a public resource windfall twice: once with the initial allocation of groundfish and again when the stock rebounds owing to circumstances unrelated to fishing pressures.
192. *See* 1999 National Research Council Report, 151–52.
193. The Pacific IFQ groundfish fishery has provisions that are intended to indirectly facilitate quota ownership by crew members and new entrants. See Pacific Coast Groundfish Fishery Management Plan, Appendix E, E-3.
194. *See* 1999 National Research Council Report, 169–71. The original Cape Cod sectors had internal rules limiting transfers of quota to non-Cape Cod fishermen operating out of Cape Cod ports.
195. *Id.* at 209.
196. "The Last of the Port Clyde Groundfishermen," *Downeast Magazine*, May 2021, https://downeast.com/our-towns/port-clyde-groundfishing/.
197. The executive director of Associated Fisheries of Maine, for example, reportedly objected to the terms of NMFS's settlement with Rafael: "Our position has been that his groundfish permits are canceled and the quota is reallocated to the fleet." Doug Fraser, "Fishermen Question Settlement of Convicted 'Codfather,'" *Cape Cod Times*, August 22, 2019, https://www.capecodtimes.com/story/news/2019/08/23/fishermen-question-settlement-convicted-codfather/4399877007/.
198. "Our View: Catching 'The Codfather' Should Just Be First Step," Portland Press Herald, May 14, 2017, https://www.pressherald.com/2017/05/14/our-view-catching-the-codfather-should-just-be-first-step/.
199. The data in this paragraph were derived from the Maine DMR landings data. "Annual Landings Value," Maine DMR, https://www.maine.gov/dmr/commercial-fishing/landings/historical-data.html There are those who blame the decline in the Maine groundfish fleet on the overharvesting of those fish by the Maine fleet — that is, a collapse brought on by the fleet itself. The Portland fleet was certainly heavily fishing in the Gulf of Maine, but offshore vessels from ports throughout New England descended on the Gulf of Maine to "pulse fish" when groundfish were plentiful. Personal communication with former Gulf of Maine groundfishing owner/captain active during that period.
200. *See* discussion at p. 23.
201. NMFS acknowledged the importance of the excess accumulation and allocation issues and committed to future action on the issue. See note 58 above.
202. Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. at 18,295. NMFS seemed to revise its views on the applicability of National Standard 4 to the groundfish sector program when it reviewed the measures proposed in Amendment 18. *See* Amendment 18 Final Rule, Response to Comments, 82 Fed. Reg. 18,796, 18,709 (April 21, 2017).
203. *See* 1999 National Research Council Report, 167–74.
204. *Id.* at 167.
205. Final Amendment 18 to the Northeast Multispecies Fishery Management Plan Including a Environmental Impact Statement," NEFMC, August 12, 2016, https://s3.amazonaws.com/nefmc.org/160812-A18-FEIS-formal-submission-with-appendices.pdf, 30.
206. *See* Amendment 18 Final Rule, Response to Comments, 82 Fed. Reg. at 18,709. The Council's experts had recommended capping an individual entity's quota at 15% of each stock in the complex. NMFS approved a significant expansion of that recommended cap set at 15% of the total quota for the groundfish complex.
207. This was 5 percent of *all* permits issued in the fishery, regardless of whether the permits were active or not. At the time, this amounted to a calculated maximum cap of 69 permits. To get some sense of how generous a cap this was, the largest permit holder, presumably Carlos Rafael, held 55 permits at the time. Amendment 18 Final Rule, Response to Comments, *Id*.
208. *Id.*
209. Amendment 18 Final Rule, Response to Comments, 82 Fed. Reg. at 18,710.
210. The caps were set at levels that would intentionally not have any impact of any existing groundfish fishery. This decision should be contrasted with the treatment of the limited access general category (LAGC) scallop fishery where there were strict limits on permit stacking on a single vessel and a maximum ownership cap of any entity to no more than 5 percent of the total allocation to the LAGC category. Final Amendment 11 to the Atlantic Sea Scallop Fishery Management Plan (FMP) including a Federal Environmental Impact Analysis, NEFMC, June 20, 2007, https://s3.amazonaws.com/nefmc.org/Amendment_11FSEIS_0709_Submission_v1.pdf, vii. That LAGC cap required some fishing entities to divest existing permits.

211. The most recent economic analysis presented by the Northeast Science Center demonstrates a definite shift in revenue inequality in the fishery toward the concentration of the groundfish revenue in a single entity. See Northeast Multispecies Large Mesh/2020 (Gini coefficient trend), https://apps-nefsc.fisheries.noaa.gov/socialsci/pm/index.php/programs/6. Personal communications with people in Maine indicate that the aging population of the groundfish permit holders in Maine is also driving increased interest in permit sales, which could dramatically accelerate this revenue inequality trend.
212. Amendment 18 Final Rule, Response to Comments, 82 Fed. Reg. at 18,710.
213. *See* discussion at p. 23.
214. *E.g.*, "Northeast Fishery Sector VII 2019-2020 Operations Plan," NOAA, 2019, at Section 7.3 Harvest Share Transfer.
215. *See* 1999 National Research Council Report, 171–73.
216. Marysia Szymkowiak and Amber H. Himes-Cornell, "Towards Individual-Owned and Owner-Operated Fleets in the Alaska Halibut and Sablefish IFQ Program," *Maritime Studies* 14, no. 19 (2015), https://doi.org/10.1186/s40152-015-0037-6, (references omitted).
217. "Both the MSA National Standards and the LAPP provisions affirm the purpose of the MSA is the conservation and management of the nation's fishery resources, not the development of speculative financial instruments or investment opportunities for individuals or businesses not substantially participating in the fishery." Catch Share Policy 2017, 14-15.
218. *E.g.*, the Alaska halibut and sablefish IFQ program rules were set up to promote individual ownership and owner-operator fishing operations. Many state fishery rules have similar restrictions. The Massachusetts lobster fishery regulations, for example, require that all inshore lobstermen also be owner-operators. 322 CMR § 703(6)(c). Maine and many other states have similar restrictions. In the Maine scallop fishery, the owner of the license has to be on-board the scallop boat. 12 MRSA § 6702.2. Even with such restrictions, researchers have shown that catch share programs tend to produce unwelcome outcomes and that these outcomes are inherent in such "privatization" approaches. E.g., C. Carothers, "Fisheries Privatization, Social Transitions, and Well-being in Kodiak, Alaska," Marine Policy 61 (February 26, 2015): 313–22, https://doi.org/10.1016/j.marpol.2014.11.019. One analysis concludes that "[i]f we view marine conservation as stewarding sustainable human-marine connections, ITQs become antithetical to conservation because they function as a mechanism for the alienation of local fishing rights embedded in place." Donkersloot and Carothers, "Beyond Privatization: Rethinking Fisheries Stewardship North Pacific," 265.
219. Canada, for example, recently enacted strict owner-operator rules for all inshore licenses in Atlantic Canada, concluding that such rules were necessary to "keep the benefits of an inshore fishing license in the hands of independent core harvesters and maintain a separation between the fishing sector and other sectors." Barb Dean-Simmons, "DFO Owner/Operator Policy for Fishing Enterprises Becomes Law Today," *Saltwire*, December 9, 2020, https://www.saltwire.com/prince-edward-island/business/local-business/dfo-owneroperator-policy-for-fishing-enterprises-becomes-law-today-529298/.
220. Catch Share Policy 2017, 15.
221. 2021 National Academy of Sciences, Engineering, and Medicine Report, 15.
222. *Id.* at 13.
223. *Id.*
224. *See, e.g.,* Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. at 18,293–295.
225. *See* p. 26.
226. Catch Share Policy 2017, 15.
227. "New England Fishery Management Council Program Review Report: An independent report prepared by the Program Review Panel," Program Review Panel, May 3, 2018, https://s3.amazonaws.com/nefmc.org/Final_ProgramReview_Report_050318.pdf.
228. "Perspectives on the New England Fishery Management Council Process: Summary of Input from Stakeholders (Final Draft)," Fisheries Leadership & Sustainability Forum, April 5, 2018, http://s3.amazonaws.com/nefmc.org/NEFMC-Program-Review-Stakeholder-Input-Summary-Final-draft-April-4.pdf, 47–48. These impressions, of course, are intrinsically subjective and biased. Yet, the fact that they seem to be so universal, so widespread, and so difficult to refute is a significant problem with the current joint research efforts.
229. *E.g.*, Steven J. Kennelly, "Program Review of the Northeast Science Center Northeast Cooperative Research Program," 2016, http://icic.net.au/wp-content/uploads/2018/09/NEFSC-Cooperative-Research-Review.pdf, 16–19.
230. "Groundfish Catch Share Comments," Associated Fisheries of Maine, August 23, 2019, at 3 (emphasis in original omitted).
231. *Id.*, Northeast Seafood Coalition, August 19, 2019, 107.
232. "Industry-Based Survey for Gulf of Maine Cod," Mass.gov, https://www.mass.gov/service-details/industry-based-survey-for-gulf-of-maine-cod.
233. "Program Review Recommendation Tracking Sheet," NEFMC, Recommendation 19 at sheet 4 of 11, June 8, 2021, https://s3.amazonaws.com/nefmc.org/1B_210608_Prog_Rev_Tracking.pdf.
234. Jonathan A. Hare, "Food for Thought: Ten Lessons from the Frontiers of Science in Support of Fisheries Management," *ICES Journal of Marine Sciences* 77, no. 3 (2020): 870–77, https://repository.library.noaa.gov/view/noaa/28477/noaa_28477_DS1.pdf. For an interesting perspective on fishermen as "knowledge experts," see Edward P. Ames, "Stonington Fisheries Alliance – Putting Fishermen's Work to Knowledge," Univ. of Maine Digital Commons, 2005, https://digitalcommons.library.umaine.edu/maine_env_organizations/178.
235. Hare, "Food for Thought," 874.
236. Kjell H. Nedreaas et al., "The Norwegian Reference Fleet: Co-operation Between Fishermen and Scientists for Multiple Objectives," ICES CM 2006/N:05, 2006, https://core.ac.uk/download/pdf/225936935.pdf, 1.
237. 16 U.S.C. § 1851(a)(1).

238. Rachel Gallant Feeney, "Evaluating the Use of Social Impact Assessment in US Northeast Federal Fisheries Management," *Impact Assessment and Project Appraisal* 31, no. 4 (2013): 274, https://www.tandfonline.com/doi/full/10.1080/14615517.2013.821768.

239. In addition to National Standards 4 and 8, NMFS has a direct, non-delegated statutory duty under the National Environmental Protection Act to ensure that the economic and social impacts of proposed council management actions under review by NMFS are fully considered. 42 U.S.C. §§ 432*1 et seq.*; 40 C.F.R. § 1502.16(b).

240. The Council has one professional staff with non-economics social science expertise, who was added to the staff in 2012. She is responsible for all the Council's social impact analyses for the multiple and varied fisheries under the Council's jurisdiction. In addition, there are currently two non-economics social scientists on the Council's Science and Statistical Committee (SSC). Based on the recollections of one social scientist who followed the process, the Council did not refer a single non-economics social science question to the Council's SSC during the development of Amendment 16.

241. "Human Integrated Ecosystem Based Fishery Management Research Strategy 2021-2025," NOAA, https://www.fisheries.noaa.gov/human-integrated-ecosystem-based-fishery-management-research-strategy-2021-2025-executive-summary, Figure 1.

242. Anna Henry and Julia Olson, "An Overview of the Survey on the Socio-economic Aspects of Commercial Fishing Crew in the Northeast," NOAA Technical Memorandum NMFS-NE-230, September 2014, https://repository.library.noaa.gov/view/noaa/4862, 1.

243. For example, there is no database on commercial fishing crew in the fishery: "It is difficult to obtain estimates, let alone actual counts, of crew and hired captain employment due to limited data availability and granularity." 2021 NEFMC Catch Share Review, 60. The crew data collected were generally limited to surveys in the largest ports with the heaviest fishing activity. *See* 2021 Catch Share Review, 199. Similarly, there were no detailed community engagement or reliance data prior to the groundfish sector program, so no comparisons could be drawn concerning the effects of sectors. *See* 2021 NEFMC Catch Sector Review, 157.

244. 2021 Catch Share Review, 215 (emphasis added).

245. *Id.*

246. Final Rule, Amendment 21-4 of the Pacific Coast Groundfish FMP, 84 Fed. Reg. 68,800 (December 17, 2019).

247. Proposed Rule for Amendment 21-4 of the Pacific Coast Groundfish FMP, 84 Fed. Reg. 54,561 (October 10, 2019).

248. Final Rule, Amendment 21-4 of the Pacific Coast Groundfish FMP, 84 Fed. Reg. 68,800 (December 17, 2019).

249. See "New England Fishery Management Council Program Review Report: An independent report prepared by the Program Review Panel," Program Review Panel, May 3, 2018; see also "Program Review Recommendation Tracking Sheet," NEFMC, June 8, 2021, https://s3.amazonaws.com/nefmc.org/1B_210608_Prog_Rev_Tracking.pdf.

250. Council Program Review Report, 8.

251. "Program Review Recommendation Tracking Sheet," NEFMC, June 8, 2021, https://s3.amazonaws.com/nefmc.org/1B_210608_Prog_Rev_Tracking.pdf, 1.

252. Thomas A. Nies, "Summary of November 18, 2020 Executive Committee Meeting," November 27, 2020, https://s3.amazonaws.com/nefmc.org/1C_2020-NOV-EXC-Mtg-Summary.pdf.

253. These agencies are active already in fisheries issues around the region and would seem to qualify as ideal partners in developing community-scale sociocultural and economic data and analyses. Just one example of such an organization is the Coastal Enterprises Institute in Maine, https://www.ceimaine.org/.

254. Scyphers et al., "Chronic social disruption following a systemic fishery failure," 22913.

255. *See* Patricia M. Clay et al., "Defining Social and Economic Performance Measures For Catch Share Systems in the Northeast U.S.," paper presented at the *IIFET 2010 Mortpellier Proceedings* (uploaded February 25, 2014), 1, https://www.researchgate.net/publication/260337631_DEFINING_SOCIAL_AND_ECONOMIC_PERFORMANCE_MEASURES_FOR_CATCH_SHARE_SYSTEMS_IN_THE_NORTHEAST_US.

256. *Id.* at 3.

257. *Id.*

258. Lisa L. Colburn et al., "Community Profiles for Northeast U.S. Fishing Communities," NOAA Fisheries, Northeast Fisheries Science Center, Woods Hole, MA, 2007, https://apps-nefsc.fisheries.noaa.gov/read/socialsci/pdf/community-profiles/introduction.pdf.

259. Lisa L. Colburn et al., "Community Participation in U.S. Catch Share Programs," NOAA Technical Memorandum NMFS-F/SPO-179, December 2017, https://spo.nmfs.noaa.gov/sites/default/files/TMSPO179_0.pdf.

260. See p. 38.

261. Catch Share Policy 2017, 18 (emphasis omitted).

262. Henry and Olson, "An Overview of the Survey on the Socio-economic Aspects of Commercial Fishing Crew in the Northeast," 5.

263. The number of crew involved in fisheries was estimated to be 30,000 at the time. The Science Center calculated that they would need a sample size of 1,330 respondents for the results to be meaningful. Unfortunately, they were only able to get 359 crew members to fully complete the survey; about 654 crew members refused the survey for various reasons. A "second wave" of the survey was undertaken in 2018–2019, although CLF could not find many details on this survey. The estimated commercial crew size in the Northeast region (mid-Atlantic and New England) at that time was estimated at 21,616 with a survey goal of 452 respondents. The protocol was adjusted to weight the surveys toward the busiest ports in hopes of receiving more completed surveys. This survey succeeded in 479 completed surveys but obviously missed crew data from ports that had lower fishing activity or that were no longer engaged in fishing.

264. Rachel Gallant Feeney, "The Collection and Use of Sociocultural Information in [NEFMC] Processes," NEFMC 2017, Newburyport, MA, 42.

265. Cronin, "Community Perspective: A Special Report," 15.

266. 1999 National Research Council Report, 190.

267. This office could be modeled on the national policy for recreational fisheries.
268. "Effective management of sectors requires that catch be accurately known." Amendment 16 FEIS, 110.
269. *E.g.*, Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. at 18,296–297.
270. Private conversations with industry leader/Pacific Council member and former NMFS officials.
271. 2021 Catch Share Review, 86.
272. CLF filed a Freedom of Information Act request with NMFS on January 8, 2021, seeking copies of the annual sector reports. It finally received a response to the request on June 28, 2021, and the FOIA response was not concluded until September 2021; many of the released reports were heavily redacted, presumably by the sectors themselves. There does not appear to be a standard approach being used to determine "non-releasable" information.
273. Amendment 16 Final Rule, Response to Comments, 75 Fed. Reg. at 18,293.
274. "April 2018 Council Audio: Introductions, Announcements, and Reports on Recent Activities," NEFMC, https://s3.amazonaws.com/nefmc.org/180417_1_Intros-and-Reports.mp3, at 25:16.
275. "January 2019 Council Audio: FDSAWF con'd," NEFMC, https://s3.amazonaws.com/nefmc.org/10_FDSAWG-Contd.mp3, at 32:49.
276. "Summary of Stock Area Analysis and Investigation of Misreporting in the Northeast Multispecies Fishery," USCG First District Enforcement Staff, https://s3.amazonaws.com/nefmc.org/USCG-Groundfish-Misreporting-Investigation-and-Analysis.pdf, 21.
277. "Compliance Improvement Recommendations for Groundfish Sector Management," NOAA Office of Law Enforcement Northeast Division, June 2019, https://s3.amazonaws.com/nefmc.org/Compliance-Improvement-Recommendations_Groundfish-Sector-Management.pdf.
278. The report noted the following issues: "[VTRs] showing fish harvested in areas where vessels did not fish, incredibly high catch amounts when compared to the reported time fished, discrepancies between [vessel-monitoring-system]-recorded fishing durations by statistical area and operator-reported fishing time, and discrepancies between observer catch data versus operator-reported catch data that were not systematically flagged and audited." *Id.* at 2.
279. Assoc. Fisheries of Maine, "Groundfish Catch Share Review Comments," 4.
280. While sector operating plans are public documents, their mandatory annual reports that would provide data on numerous matters including the efficacy of the sector's monitoring programs and enforcement actions taken against members are not publicly available. This is in stark contrast to the West Coast groundfish fishery, whose annual reports are public.
281. *See, e.g.*, "NOAA: Rafael's Misreported Fish 'Disappeared' at Whaling City Auction," SouthCoast Today, December 9, 2019, https://www.southcoasttoday.com/story/business/2019/12/09/noaa-rafael-s-misreported-fish/2113667007/
282. 1999 National Research Council Report, 175.
283. *Id.* at 179.
284. "About Us: Office of Law Enforcement," NOAA, https://www.fisheries.noaa.gov/about/office-law-enforcement.
285. "Enforcement Section Offices," NOAA Office of General Counsel, https://www.gc.noaa.gov/enforce-office1.html#northeast. Our review of the publicly available records cannot confirm a "significant increase" in referrals to NOAA GC apart from Rafael.
286. Private conversation with former Council member who actively follows the fishery.
287. *Id.*
288. "Office of Law Enforcement Annual Report Fiscal Year 2015," NOAA, 2016, https://repository.library.noaa.gov/view/noaa/15635, 5.
289. "Office of Law Enforcement Annual Report Fiscal Year 2016," NOAA, 2017, https://repository.library.noaa.gov/view/noaa/15634, 3.
290. "Office of Law Enforcement Annual Report Fiscal Year 2017," NOAA, 2018, https://repository.library.noaa.gov/view/noaa/18375, 3.
291. "FY 2018 Annual Report: NOAA Office of Law Enforcement," NOAA, 2018, https://media.fisheries.noaa.gov/2020-09/FY2018%20Annual%20Report_NOAA_FINAL.pdf, 2–3.
292. Scallop vessels owned by Rafael were even caught violating the law while Rafael served time in prison. See Doug Fraser, "Police: Captain of 'Codfather' Boat Cited for Scallop Catch," Cape Cod Times, January 30, 2018 (referencing multiple violations associated with Rafael's scallop operations).
293. Doug Fraser, "Despite Guilty Plea, 'Codfather' Continues to Fish," Cape Cod Times, August 11, 2017. NMFS did not shut down NEFS IX's fishing operations until November 2017.
294. *E.g.*, Chris Chase, "New Bedford Tries to Move On in Wake of Codfather Case, but Relief Won't Come Before Summer," SeafoodSource, April 19, 2018, https://www.seafoodsource.com/features/new-bedford-given-path-forward-in-wake-of-codfather-case.
295. NEFS IX sector members were subsequently allowed to move to other sectors and the sector was eventually allowed to disband.
296. Olsen et al., *A Handbook on Governance and Socioeconomics of Large Marine Ecosystems*, 58.
297. *Id.* at 57–8.
298. Borrell, "The Gloucester Fish War."
299. "Review of NOAA Fisheries Enforcement Programs and Operations," Office of the Inspector General, U.S. Dept. of Commerce, Final Report No. OIG-19887, January 2010, https://www.oig.doc.gov/OIGPublications/OIG-19887.pdf.
300. Borrell, "The Gloucester Fish War."
301. *Id.*
302. *Id.*
303. Secretary Locke, "Secretarial Decision Memorandum," U.S. Department of Commerce, September 23, 2010, 3–4.

304. Acting Secretary Blank, "Secretarial Decision Memorandum," U.S. Dept. of Commerce, December 14, 2012, 4–5.

305. Numerous people with first-hand knowledge of this Gloucester episode and the ensuing investigation of the NOAA enforcement program, including state enforcement personnel, tell a different story. They contend that although there were a number of legitimate issues with respect to how the enforcement program was being run that were properly highlighted by the Inspector General, the crackdown was largely politically motivated, and the claims of enforcement excesses were exaggerated for the purpose of crippling the regional enforcement program.

306. Borrell, "The Gloucester Fish War."

307. Personal communication with former Council member who actively follows the fishery.

308. *U.S. v. Carlos Rafael*, 16-CR-10124-WGY, Plea Agreement at 3 & Appendix A.

309. Compare *id.* with Indictment.

310. *U.S. v. Carlos Rafael*, 16-CR-10124-WGY, Plea Agreement at 2–3.

311. *Id.*, Government's Sentencing Memorandum, at 5 (September 20, 2017).

312. *Id.*, Memorandum & Order Concerning Forfeiture, 282 F. Supp. 3d at 407, 411–12 (October 11, 2017).

313. *See id.*, 282 F. Supp. 3d at 409–10.

314. *U.S. v. Rafael*, 282 F. Supp. 3d at 407 (2017).

315. *Id.*, 282 F. Supp. 3d at 412–13.

316. *U.S. v. Bajakajian*, 524 U.S. 321, 336 (1998). At 10 times the maximum fine set by the federal sentencing guidelines at the time, Judge Young's decision fell somewhere between the precedent set previously that 4 times the guidelines was *not* excessive, *see U.S. v. Jose*, 499 F.3d 105, 113 (2007), and *Bajakajian*, which held that 70 times the maximum guideline fine *was* excessive, *U.S. v. Bajakajian*, 524 U.S. at 338–39.

317. *U.S. v. Rafael*, 282 F. Supp. 3d at 413.

318. *See* "NOAA Notice of Violation and Assessment of Administrative Penalties, Notice of Permit Sanctions & Notice of Intent to Deny Permits," NOVA, September 10, 2018. Available from CLF.

319. Madelyn Kearns, "Groundfish Landings Nosedive in New Bedford as Dust Settles from the Codfather Case," *SouthCoast Today*, April 12, 2018, https://www.seafoodsource.com/news/supply-trade/groundfish-landings-nosedive-in-new-bedford-as-dust-settles-from-the-codfather-case, (internal quotation marks omitted).

320. *See, e.g.*, Kiernan Dunlop, "NOAA: Rafael's Misreported Fish 'Disappeared' at Whaling City Auction," *SouthCoast Today*, December 9, 2019), https://www.southcoasttoday.com/story/business/2019/12/09/noaa-rafael-s-misreported-fish/2113667007/

321. *See* Doug Fraser, "Most of 'Codfather' Fishing Fleet Sold," *Cape Cod Times*, February 20, 2020, https://www.capecodtimes.com/story/news/2020/02/20/most-codfather-fishing-fleet-sold/1657870007/. The U.S. Attorney stated to the federal district court that Rafael was trying to sell his entire fleet for $70–80 million. *U.S. v. Carlos Rafael*, Case No. 16-CR-10124-WGY, Government Sentencing Memorandum at 14 (September 20, 2017). At one point, the owners of BASE reportedly offered Rafael $93 million for 42 of his permits and 28 of his boats that they planned to resell to other entities. Michael Bonner, "Deal Between Rafael, Canastra Brothers Worth $93M, still Needs Government OK," *SouthCoast Today*, October 5, 2017.

322. Fraser, "Fishermen Question Settlement of Convicted 'Codfather.'"

323. *Id.*

324. Fraser, "Despite Guilty Plea, 'Codfather' Continues to Fish." Each sector has a "sector operations plan" that NMFS approves for two-year periods. The plans contain information about sector members and how the sector will function, such as how the sector will meet monitoring requirements. These operations plans are promulgated as regulations and create binding obligations for the sectors that are enforceable by NMFS.

325. "Measuring the Effects of Catch Shares: New England Interview Trends," MRAG Americas, Inc., https://catchshareindicators.org/about/field-interview-methodology/.

326. Data on charges filed were reviewed at "Enforcement Charging Information," NOAA Office of General Council, https://www.gc.noaa.gov/enforce-office7.html.

327. *Id.*

328. "Enforcement Committee/Vessel Monitoring System, NEFMC, https://www.nefmc.org/committees/vessel-monitoring-system-enforcement.

329. *Id.*

330. 2021 Catch Share Review, 86.

331. NOAA Office of Law Enforcement, "Compliance Improvement Recommendations."

332. 2021 Catch Share Review, 86 (reference omitted).

333. *Id.* at 87.

334. To its credit, the industry developed an "Inshore Gulf of Maine Declaration" protocol, designed to reduce the misreporting of catch by the stock area in which it is caught by vessels fishing in multiple stock areas.

335. *See* Atlantic States Marine Fisheries Commission, http://www.asmfc.org/law-enforcement/the-law-enforcement-committee.

336. "2015 Final Report on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2007 – April 2016)," Northeast Fisheries Science Center Reference Document 18–13 (2018), https://repository.library.noaa.gov/view/noaa/22427, 21.NEFSC, "NE Multispecies – Large Mesh/2020."

clf

conservation law foundation

62 Summer Street
Boston, MA 02110

617.350.0990
e-info@clf.org
clf.org