

TESTIMONY OF DR. JOSHUA B. WIERSMA
NORTHEAST FISHERIES MANAGER, ENVIRONMENTAL DEFENSE FUND
BEFORE THE COMMITTEE ON SMALL BUSINESSES AND ENTREPRENEURSHIP
REGARDING THE
IMPACT OF FEDERAL FISHERIES MANAGEMENT ON SMALL BUSINESSES
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Chairman Vitter, Ranking Member Shaheen, and distinguished members of the Committee:

Thank you for this opportunity to testify on the impacts of federal fisheries management on small businesses. My name is Josh Wiersma. I have a BS in Environmental Management and Policy from the University of Maine, an MS in Resource Economics from the University of New Hampshire, and a PhD in Environmental and Natural Resource Economics from the University of Rhode Island. In 2006, I began my career working at the Massachusetts Fishermen's Partnership in Gloucester, MA, as an economist/research assistant, finishing up my PhD looking at the value of collaborative research to New England fishermen. In 2008, I began work at the Northeast Seafood Coalition (NSC) as their Sector Policy Analyst, and became one of the lead architects for the development and eventual implementation of the new Sector system in 2010.

I went on to manage New Hampshire's two groundfishing sectors over the next five years. Although the transition to sectors was difficult for many of our state's fishermen, we were able to accomplish some very positive programs focused on community preservation, sustainable fishing, ecosystem protection, and advancing local markets. While a Sector Manager, I also co-founded and was the Executive Director of New Hampshire Community Seafood Association, a successful community supported fishery cooperative that offers fresh, local, underutilized fish to the New Hampshire public through a type of fish share model. I am now the Manager of Northeast Fisheries at Environmental Defense Fund, where my job is to continue to work with fishermen, the government, and policy makers to shape effective fisheries management, improve monitoring and accountability, improve fisheries science and data collection, and develop better seafood markets and other business opportunities.

In short, I am here today after spending more than ten years working to improve fisheries management in New England and considering, based on my economics training as well as my practical experience with the fishing industry, how federal fisheries management impacts small businesses. My testimony will focus on how improving federal management can help small businesses, including but not limited to fishermen, in New England.

Challenges of Current Fisheries Management and Science

As noted above, I worked with many others in New England to develop the sector program, which allocates fish quota to 17 sectors, primarily defined by geography and gear type. In its nearly five-year existence, sector management has redefined the culture and economy for New England's ground fish industry. Fishermen changed their harvesting strategies, fished more selectively with different gear, implemented new and more robust data-collection and reporting systems and technology, accepted new monitoring requirements, entered into financial and legal arrangements with other fishermen, and created new transaction schemes with buyers. The new flexibility and efficiency of the Sector system resulted in fleet-wide revenue increasing to its highest level in recent history over the first two years of the Sector program.

However, starting in 2012-2013, the quotas for key stocks like Gulf of Maine cod and many flounder stocks were dramatically slashed to address severe flaws in the stock assessments for these key species. For other stocks, quotas have varied widely, by as much as 600% from one year to the next. Processors and buyers are intolerant to that level of volatility, and out of necessity have reduced their dependence on New England groundfish in favor of more consistently available domestic sources and foreign imports. That movement away from local landings exacerbates the financial stress fishing businesses are already facing.

The current climate of uncertainty in stock assessments, combined with a non-transparent quota leasing and permit market, outdated monitoring and reporting technology, and low levels of fleet accountability and enforcement threaten to worsen the economic problems for both the individuals and the waterfront communities reliant on New England ground fish. The time is now to address these issues. Our best fishermen are exiting the fishery at an alarming rate, because even those fishermen—the ones our nation needs to be fishing to serve as stewards of this resource—can't figure out how to make a business plan from year to year, and therefore can't figure out how much to invest in the fishery's future and in their families' future.

Opportunities to Improve Fisheries Management and Science

I'm pleased to say that federal regulators have tools available to them to address these challenges and improve the stability of fishing businesses and the sustainability of the resource. This is a critical juncture for the future of New England fishing businesses. Despite the obstacles, there is hope for a better, more stable and sustainable fishery. I address below areas where fisheries management and science could do to benefit the stability of small fishing businesses and the long term sustainability of the fishery resource. They are:

- 1) Improve Monitoring, Reporting, and Accountability
- 2) Improve Stock Assessment Methodology
- 3) Increase Reliance on Collaborative Research in Science
- 4) Create a More Transparent Quota Leasing and Permit Market
- 5) Improve Data Reporting Systems and Infrastructure

1- Improve Monitoring, Reporting, and Accountability

Rebuilding key New England ground fish stocks, especially Atlantic cod, has been unsuccessful due in part to the high levels of uncertainty that plague assessment models. Scientists must rely on limited information to predict fish populations, which yield highly variable estimates from year to year. One of the biggest unknowns is what volume and type of fish that fishermen discard into the sea on

each fishing trip. A significant part of this uncertainty is due to the low levels of at-sea monitoring (ASM) that NOAA provides; scientists must rely on discard estimates from a few observed trips to *assume* what is happening on all remaining unobserved trips. As a result, scientists continue to underestimate discards and therefore overestimate abundance from year to year for some stocks—even for healthy stocks—a statistical anomaly known as a “retrospective pattern.”¹ This pattern delays the rebuilding process for overfished stocks and could eventually jeopardize the health of the rebuilt stocks.

The answer: find the best, most cost-effective means to provide complete information about what is happening to fish stocks. The answer, more specifically, is to set a goal of full accounting of fishing activities, and to adopt modern and tested technologies – electronic monitoring (EM) – to achieve this goal in a cost-effective manner. EM is an unbiased and scientifically valid form of monitoring that can provide full accountability to the fleet, which is critically important, at a reasonable cost. If everyone knows that everyone else is playing by the same set of rules, then the entire business landscape becomes more efficient and less uncertain—two characteristics good for any business.

Under the current human observer program, fishermen fill out paper vessel trip reports (VTRs) to record what they caught and discarded at sea. However, much of the information from these reports is not used in stock assessments because the reported data cannot be verified. EM offers a way to validate fishermen’s observations, giving them direct input into the science that informs management. This opens up a wealth of scientifically valid fisheries-dependent information currently unavailable to fisheries managers, with the added benefit of reducing conflict and distrust of management decisions since those decisions would then be based on verifiable records that fishermen trust.

2) Improve Stock Assessment Methodology

In recent years, Annual Catch Limits (ACLs) have varied significantly as a result of poor information, and highly uncertain scientific models. These models repeatedly over-estimate how much fish is in the ocean. Often, the true population size isn’t known until years later, and has led to more fishing than stocks could sustain. In addition, continually altering scientific assessments, retrospectively, to address this over-estimation problem has led to significant distrust of the entire scientific process and eroded social capital and stakeholder participation. Generally speaking, the northeast region has among the most robust bodies of fisheries science anywhere in the world, but it also needs to adapt to the new management system, the new technology, and to new sources of information (e.g. biological, ecosystem, bio-economic).

Developing more accurate catch limits requires better data streams feeding into the stock assessment process, and it requires that climate change and other environmental variables that can significantly affect fish stocks be taken into account. Climate change is causing fundamental shifts to the underlying ecosystem, including warmer waters and other effects such as ocean acidification and changing currents. Warming waters are causing some species to shift their abundance either northward or into deeper waters in search of more suitable habitat, and the Gulf of Maine is warming faster than 99.9% of the world’s oceans. In short, a warmer ocean is a different ocean. Yet today’s fisheries science does not account for this significant and dynamic factor. A recent study found that not accounting for

¹ Dr. Paul Rago (Population Dynamics Branch) Ground fish Operational Assessments 2015 (Summary)--presented to the New England Fishery Management Council Plymouth, MA September 30, 2015
<http://www.nefsc.noaa.gov/groundfish/operational-assessments-2015/>

climate change caused stock assessment scientists to overestimate the size of the Gulf of Maine cod stock and set catch limits too high.²

An improved stock assessment methodology could account for dynamic environmental factors and lead to more accurate catch limits, more certainty and trust, and less risk of fishing at unsustainable levels. This is another area where EM and electronic reporting (ER) would be useful. Because electronic data is more robust, complete, and accessible, monitoring data can be used not just to verify compliance but also for stock assessment science. It provides not only catch numbers, but detailed geographic and time information that is often missing or erroneous with the VTRs used today. This data could be used to generate real-time ecosystem, biological, and effort information at sea from fishing boats to scientists so they could better formulate models about the dynamic changes in the fisheries and oceans—and develop more refined and standardized Catch Per Unit Effort (CPUE) assessment models to ground-truth traditional independent trawl survey stock assessment models.

3) Increase Reliance on Collaborative Research in Science

The level of investment in collaborative research has been both inadequate and inconsistent. The inconsistency of funding is just as problematic as the overall level of funding. Fisheries science depends upon long term time-series information about the environment, stock biology and abundance, and the efficiency and effectiveness of new gear technology.

Federal funding for collaborative research has historically been constrained to two-year projects, which severely limits the usefulness of the projects as well as the engagement of a broad number of industry participants. As a result, data from collaborative research projects is very rarely used in fisheries management for stock assessments, and new selective and efficient gear technology is rarely transferable industry-wide.³

The Magnuson-Stevens Act (MSA), as amended in 2007, calls for the establishment of regionally-based cooperative research and management programs to address the needs identified under the MSA, and to address any other marine resource laws enforced by the Secretary of Commerce.⁴ It specifies that these research priorities be addressed through collaborative research projects—where fishermen and scientists work together in all phases of the project, including development of the research question, the project design, the performance of research, the analysis of the results, and the dissemination of study findings.

Collaborative research gives fishermen a direct voice in the science and management process as well as an intimate understanding of how and why the data collected will be used by fisheries managers. Therefore, the efficiency and cost effectiveness of expanded cooperative research programs may be improved if policy makers use fishermen as research partners and prioritize research that evolves from the ground up. If a full-blown collaborative research project is not appropriate, fishermen can also be

² <http://science.sciencemag.org/content/350/6262/809>

"Slow adaptation in the face of rapid warming leads to collapse of the Gulf of Maine cod fishery" Andrew Pershing, et al.

³ The most notable exception to this is the "ruble trawl", also known as the "eliminator trawl", which allows fishermen to target haddock and avoid cod based on a unique net design that takes into account the behavior of captured fish. If they use this technology, fishermen are allowed to fish with a different discard rate than if utilizing other gear, and are allowed exemptions to previously closed fisheries. More investment in transferable gear technology like this will be a critical part of sustaining a healthy bio-economic ecosystem moving forward.

⁴ [cite]

incentivized to participate in a limited manner, for example by agreeing to report fisheries-dependent information on a more granular or more frequent basis, filling in additional reports, or field testing new technology. In fact, if the whole fleet used EM/ER, it would effectively turn every boat into a cooperative research vessel.

4) Create a More Transparent Quota Leasing and Permit Market

Quota leasing is the system of transferring Annual Catch Entitlement (ACE) between Sector fishermen, or between Sectors. Individuals within Sectors are allowed to fish, lease, or trade the amount of allocation that they brought into the Sector through their permit allocations. This is critical because fishermen are allocated a share of 16 different stocks even though most fishermen don't target all these stocks. Instead, they are allowed to trade the fish they don't want to catch for another type of fish, or for cash. This creates a type of "stock market" for fishing rights. But currently, there is not a transparent leasing market for this quota (ACE), and price volatility is a major issue, inhibiting a fisherman's ability to plan. The season's market trajectory typically starts in May and June with high lease prices, and then plummets at the end of the season as unused quota and diminished effort drive prices down. Participants are often uncertain of when to invest in more ACE, as they cannot predict whether they'll be able to land the fish they lease, and do not know the price they'll receive for their catch.

Information about the price and quantity of what fishermen are "asking" for their ACE is currently available through disparate emails between managers, text messages, or private phone calls. Almost no information about the actual execution prices of ACE trades is available, especially on a real time basis useful for making dynamic fishing decisions in a changing ecosystem. These inefficiencies in the quota lease market can have significant economic impact. In 2013, over 17.8 million pounds of quota (\$15M) was leased between sectors, which accounted for 30 percent of total landings. Fishermen either wait too long to sell their ACE, or accept a price well below market value because no other information is available. The market is currently distorted because asymmetrical information is benefiting a disproportionate number of businesses. These businesses then set the market for those who don't possess the same information.

Fisheries permits sales are also subject to the same level opacity, which degrades their value to fishermen and limits their use as collateral. The value of fishing permits changed significantly after the DAS management system based on leased days transitioned to the Sector Management System based ACE. Because ACE is determined by catch history, some permits with high catch history became highly valuable, others lost most of their value. Given all the changes in management and uncertainty in ACLs in recent years it is very hard to predict a permit's value. This is exacerbated through lack of transparent information about recent permit sales.

The opaqueness of both the quota markets restrict outside capital from interested financial institutions from actively investing or providing loans to New England fishing businesses because of the difficulty in calculating the cash-flow potential from leasing and, thus, the value of the permit and fishing enterprise. In addition, no mechanism exists to validate the presence of a lien on a permit with the financial community before a transfer, and no third party verification exists for valuing assets (like quota). While sector managers facilitate transfers, traditional markets rely on appraisers and brokers to value assets so financial institutions can invest in or lend against the asset. This mechanism is not functioning in New England. As a result, fishermen have a very difficult time using their fishing permits as collateral when applying for a loan to improve their business, and as a result they often take second or third mortgages on their homes, or sacrifice important benefits like health insurance.

5) Improve Data Reporting Systems and Infrastructure

Investment in overhauling the fleet's hardware, like old computers and other electronics, would significantly help the broad transition towards things like EM/ER. Computer hardware takes a beating at sea, and programs that could help recycle old electronics for new ones would help greatly. A good example is the Gulf of Maine Research Institute's program to provide a free new laptop to all fishermen who transition to Electronic Reporting.

But currently, only 20 percent of the fleet uses ER, and the system that is in place is not adaptable to new "smart technology." NOAA Fisheries has prioritized the development of new systems of integrated EM/ER in their "Fisheries Modernization Plan," but they continue to push back the time of full implementation and won't commit to some type of final transition date. The information collected at sea through a modernized system of reporting and monitoring would have broad benefits to both the fishery and the fleet.

Currently, managers, dealers and fishermen are disparate entities that don't fluidly communicate with one another. We need an integrated and real time network of data flow and communication that connects Vessel Trip IDs with dealer-reported trip landings to government and sector records. The sustainability of today's fishing communities depends on the move towards this type of integrated approach to data collection, management and integration.

An integrated information management system would channel single-entry landings information in real-time to an information network of software services and devices that enable efficient reporting and compliance, improved dealer business management, more efficient ACL utilization, improved bycatch avoidance, and enhanced marketing capacity by facilitating locally-branded, traceable, and immediately available harvest inventory to community marketing efforts. This type of real time inventory of catch would be extremely beneficial to local restaurants and fish houses trying to plan their promotion of local seafood. This information network would form the infrastructure for multiple user interfaces with existing software platforms (e.g. Sector business management tools, or marketing tools like traceability and catch verification).

In addition, this real-time integrated approach to data collection and management is a prerequisite for a robust trading platform. First, we need real-time landings information flowing continuously to the National Marine Fisheries Service and to the commercial fishing industry via sectors. This is a necessary condition for a successful trading clearinghouse because in order to execute trades in real time, it is necessary for individuals to have knowledge of their remaining ACE allocations in real time. Currently, this information is eight days behind, which makes it difficult to plan a business.

Conclusion

In conclusion, addressing these key areas of fisheries management and science would lead to more certainty in the system, higher levels of investor confidence, reduced risk (both financial and safety) to fishermen, improved science, more equitable distribution of the fishery resource, and better business opportunities. Clearly, not all of these areas can be addressed and improved at once, and some need to be addressed before the full benefit of others can be realized. So, I prioritize the areas from to focus on the most important area first. It starts with better monitoring and accountability, which will lead to better reporting and data systems integration, which can then facilitate real time quota trading exchanges, and also new streams of environmental data feeding into more real time and adaptable management and science. Thank you for the opportunity to provide this testimony to address this important topic.