Swimming Upstream: Financial Strategies to Pivot US Fisheries to Sustainability

Introduction

Commercial fishing is vital to the US economy, contributing billions of dollars annually and supporting millions of jobs. In 2022, the US commercial fishing industry harvested over 8.3 billion pounds of seafood valued at $5.9 billion. Beyond direct harvesting, the industry generated $183.4 billion in sales impacts, $47.2 billion in income, and $74 billion in value-added impacts, supporting 1.6 million jobs across the broader economy (Figure 1).

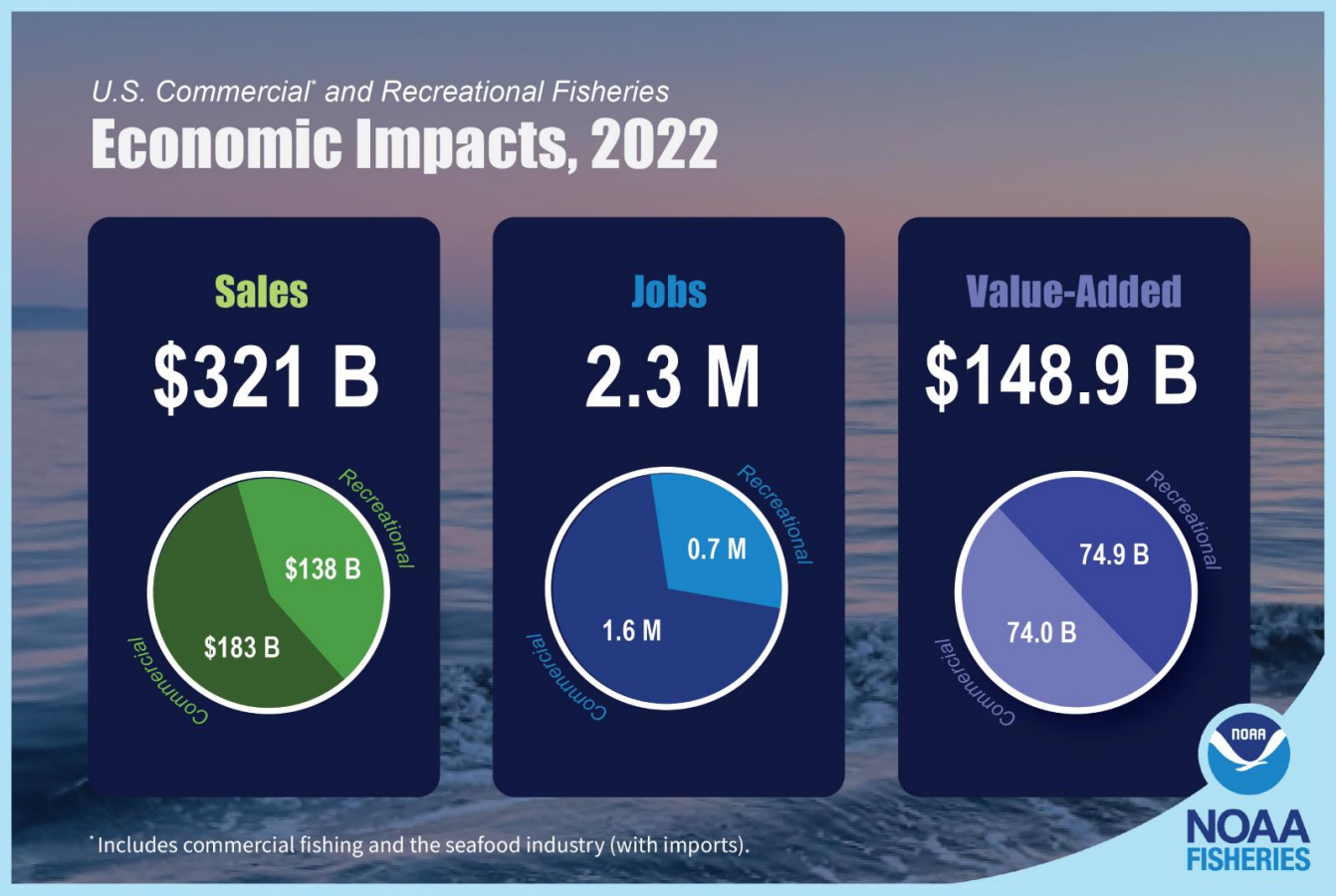

Figure 1: Economic impacts of U.S. commercial and recreational fisheries in 2022. Source: NOAA.

However, as of the end of 2023, 47 fish stocks were classified as overfished, indicating a need for continued sustainable management practices (Figure 2).

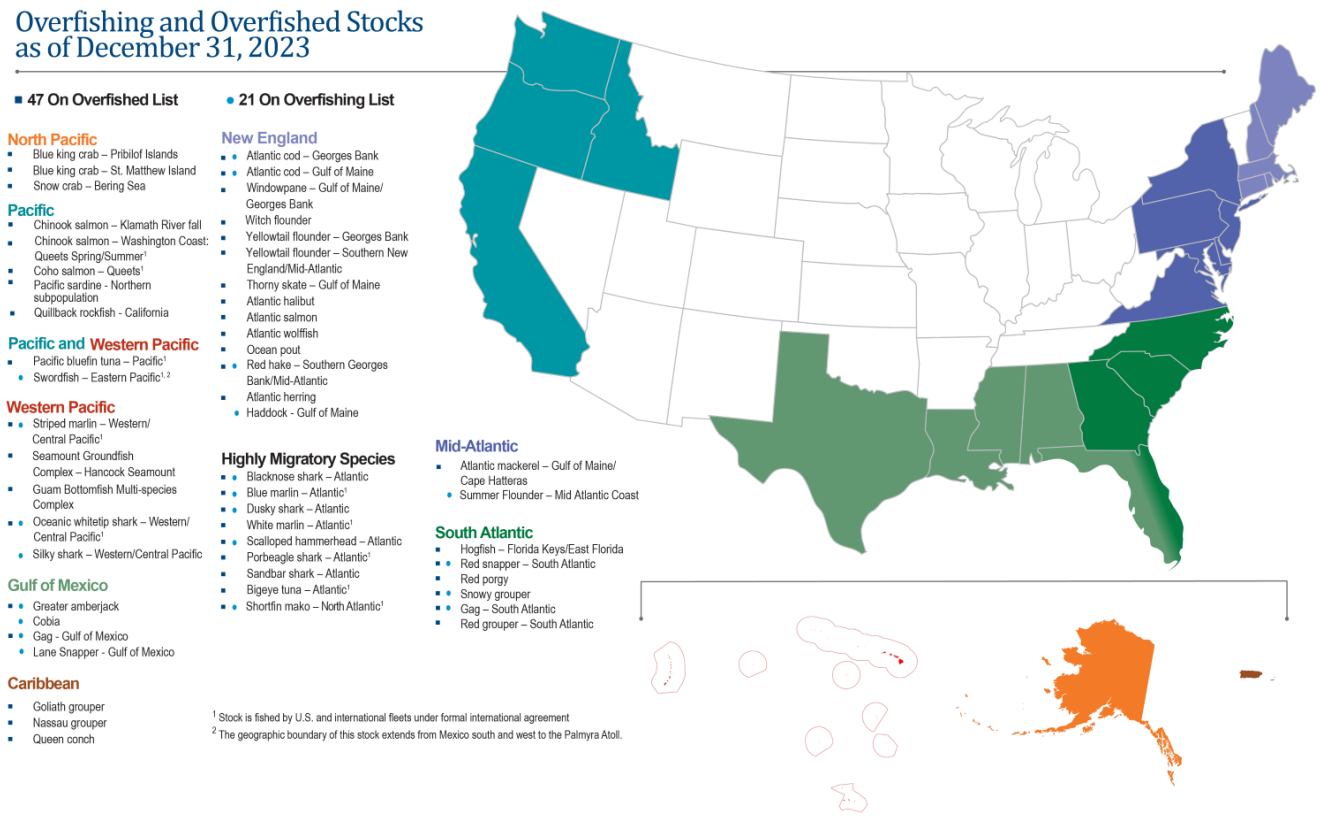

Figure 2: Overfishing and overfished stocks in the United States as of December 31, 2023. Source: NOAA.

NOAA Fisheries manages 506 stocks or stock complexes in 45 fishery management plans. At the end of 2023, the overfishing list included 21 stocks, the overfished list included 47 stocks, and one stock was rebuilt, bringing the number of rebuilt stocks to 50 since 2000 (Figure 3).

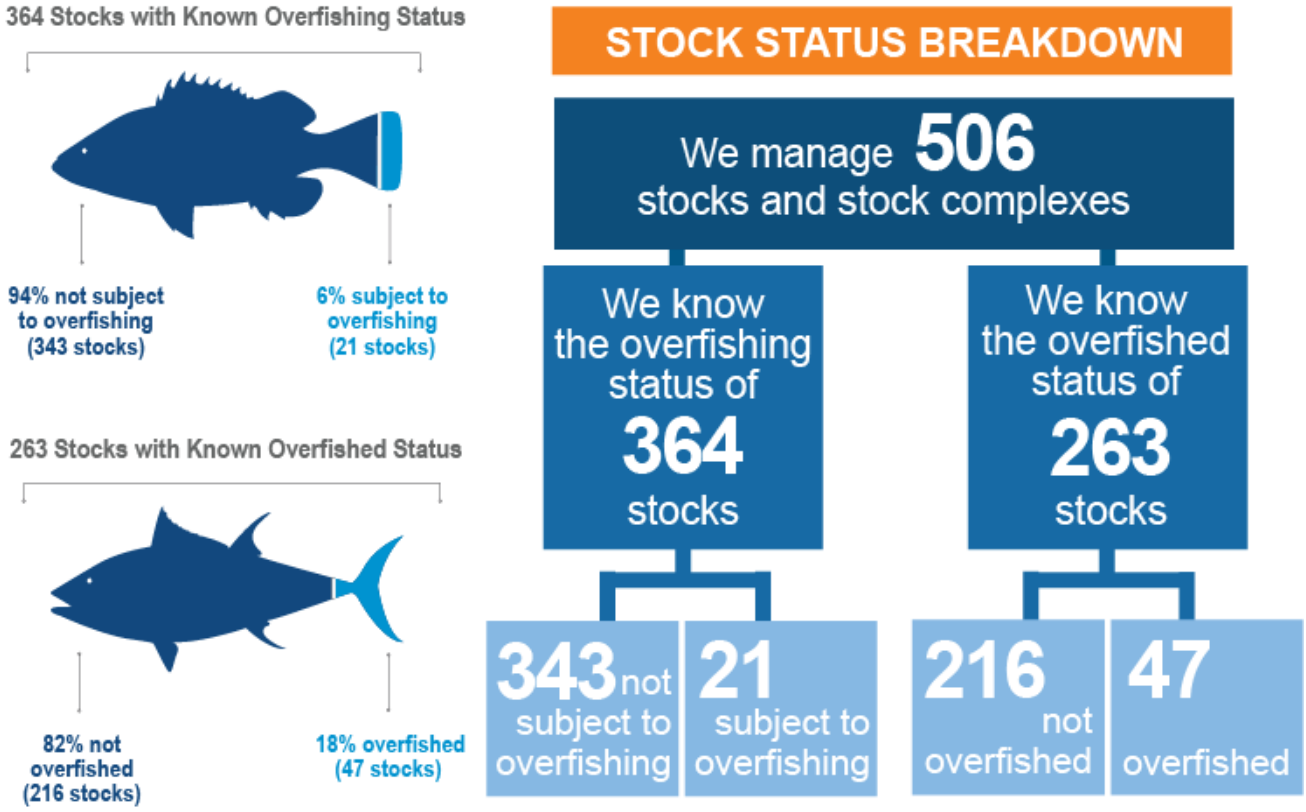

Figure 3: US Fisheries Stock Breakdown. Source: NOAA.

Given this, NOAA Fisheries launched its National Seafood Strategy: Implementation Plan in September 2024, describing a vision that:

- US seafood continues to be harvested and produced sustainably.
- The US seafood sector, which includes the full range of harvesting and processing sectors and seafood communities, contributes to the nation's climate-ready food production, to food security, and to meeting critical domestic nutritional needs.
- US seafood production increases to support jobs, the economy, and the competitiveness of the US seafood sector.
- Supply chains and infrastructure are modernized with more value-added activity in the US.
- Opportunities are expanded in order to build a diverse and growing seafood workforce.

Furthermore, to address these risks to US fisheries, Responsible Alpha suggests:

- Off-ramps for economically unsustainable fishers.
- A fair and sustainable transition from an older generation of fisher (who were on the ground floor when the US quota era began). A quota is a federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person.
- On-ramps for new entrants armed with the financial acumen and sensitivity to the changing ocean environment.

These ramps require better financial mechanisms to incentivize transitions. Responsible Alpha's suggestions include:

- Financial literacy would be high among fishers and financial tools are at their disposal to help to calculate the impacts of financial decisions.
- Qualified fishers could more easily access loans through de-risking measures such as credit guarantees. Concessionary capital is secured alongside market-rate debt sources for high-risk transitions, using blended finance, loan guarantees, and investment in equity alongside debt.
- NOAAs ecosystem-based fisheries management policy would provide opportunities for performance-based financial incentives linked to natural capital stewardship aligned with federal and state climate policies and incentives.
- Variable energy costs would be managed through energy-efficient vessels, made possible through concessionary climate financing and a "cash for clunkers" program for inefficient vessels.
- Socio-economic impact beyond the direct earnings of the vessel, along with sustainability, would be addressed, e.g., measuring the economic impact on communities, in considering allocations of quota, consistent with ecosystem-based fisheries management principles and natural capital accounting.
- Integrated food systems would facilitate the linkage of production and consumption at local scales.

Context

In 2022, Responsible Alpha undertook an investigation of the economic challenges and tools available in the New England groundfish fishery and the Gulf of Mexico reef fisheries. Responsible Alpha conducted interviews and site visits in Cape Cod and the Islands, Maine, and Mississippi. Responsible Alpha also conducted remote interviews with thought leaders in the Alaska salmon fishery.

The results of this study focus on the decision-making processes around making investments in sustainable fisheries, and the factors affecting those decisions. Responsible Alpha conducted semi-structured interviews, and focus group discussions in the field. Responsible Alpha visited southern Maine, Cape Cod Massachusetts, and Biloxi, Mississippi (the latter on the occasion of a Gulf Fisheries Management Council meeting).

Fisheries in Transition

These fisheries are in transition. This process began with the Magnuson-Stevens Fisheries Conservation and Management Act of 1976, as amended in 1996 and reauthorized in 2006 ("Magnuson Act"). The regulatory process under the Magnuson Act has transitioned fisheries over time from management based on effort to management based on fish catch, as a necessary part of the mandated process of rebuilding and maintaining healthy fish stocks.

The first phase of the transition was through the introduction of a quota-based system in 1976. The quota system was initially chaotic and resulted in significant challenges in terms of bycatch and discards, and misreporting. The quota system was then abandoned.

The second phase began with the regional fisheries management councils, and the introduction of Fisheries Management Plans, which regulated gear, minimum fish size, areas where fishing could occur, and level of effort. Regulation of days at sea proved ineffective in controlling overfishing, and in some cases, contributed by creating perverse incentives to discard fish.

In response, catch share programs began to be reintroduced incorporating lessons learned from NOAA's initial experience with quotas. Catch shares allocate a privilege to fishers to harvest a specific area and/or a percentage of the total allowable catch of a species. These took the form of tradeable Individual Fishing Quotas (IFQ), a fixed amount of which were allocated at the outset of the management system. Entrants to the fishery must purchase or lease quota in order to participate.

A further evolution of the catch share approach employed by NOAA Fisheries is "sector management", introduced in 2004 in the Northeast Multispecies Fishery (New England groundfish). A "sector" is a hybrid form of governance structure for fisheries management in the form of a cooperative association of fishers that work together formally but which self-organize around quotas.

A fisher can either be part of the common pool or can opt to participate in a sector. The advantages of sector-based management include exemptions from some regulations that apply to the common pool vessels, and sector-specific rules for discard based upon past performance Overages are deducted from the sector's quota the following year.

The catch share program has evolved into a complex cap and trade system, in which quota, based upon total allowable catch, provides the cap. However, because of the cap, speculative pressure has emerged. The link between stewardship and wealth creation has been subverted, despite efforts through the sector system. Instead, the catch share program has evolved into a rental market that is not creating wealth, except for the permit holders. Scarcity of quota drives the price up even as the stock continues to decline, creating unearned income for a small group, and substantial barriers for the fishery as a whole.

NOAA Fisheries has produced a roadmap for implementation of the Ecosystem-Based Fisheries Management, NMFS Policy 01-120 (EBFM) approach, informed by six guiding principles:

1. Ecosystem-level planning.
2. Advanced understanding of ecosystem processes.
3. Prioritization of vulnerabilities and risks to ecosystems.
4. Understanding and addressing trade-offs within the system.
5. Incorporation of ecosystem considerations into management advice.
6. Maintenance of resilient ecosystems, including community well-being.

Each Fisheries Management Council (FMC) has an implementation plan which will culminate in the establishment of Fisheries Ecosystem Plans. At the present, it is unclear if or how the EBFM approach will change quota allocations, gear restrictions, or closed areas. The role of IFQs and the value of quotas is an open question. This creates considerable uncertainty concerning the value of a catch share and the extent to which share acquisition is a sound financial strategy.

It should also be noted that while resilience, including community well-being, features prominently in EBFM policy, implementation strategies downplay effort to understand the relationship between

management decisions and impacts on communities. Wellbeing is typically relegated to something to be addressed in a workshop, or in other words, a box to be ticked.

Headwinds

Presently, the fisheries reviewed are facing headwinds that inject uncertainty and affect financial decisions. They are outside the control of the individual fisher and in some cases, to a given fishery. They include:

- **Regulatory processes** that produce strong swings in allowable catch. There is a large lag (around 3 years) in the collection of population data and changes in regulations. Thus, is it difficult for the fishers to anticipate the massive swings in quota allocation that they are experiencing, or to have confidence in evidence-based decision-making.
- **Global competition** as fisheries face foreign competition. Variations in stocks, regulations, degree of subsidy, and costs can give imported fish a competitive advantage over US production.
- **Climate change,** which is changing the composition of the fisheries via both acute and chronic physical risks – storm surge, acidification, shifting currents and thermoclines, sea level rise, ocean temperature increases, ocean "heat days", etc. respectively, thus creating significant risks and uncertainties.
- **Energy costs** driven by exogenous macroeconomic and geopolitical events, which create much greater variability in energy costs. While these spiking fuel costs are a temporary phenomenon, oil prices are notoriously volatile, and sensitive to geopolitical events.

These headwinds are compounded by fishery management systems inability to embrace change. This is where there is significant inertia or lag between stimulus and response, e.g., between shocks that affect productivity and market responses, and between changes in productivity in a fishery and regulatory responses.

Findings

Target beneficiaries are broadly receptive to the use of market demand to improve fisheries management. The constraints to sustainability through market demand are limited however. Some aspects of the relationship are direct (Figure 4).

Key is that market demand for sustainably produced seafood by itself is unlikely to improve sustainability in the fisheries studied except in conjunction with movement to address a range of constraints in a complexity-aware systems approach to fisheries.

The financial opportunities that a non-profit or foundation could provide are to support and enhance existing business lending models. Loan criteria do not match perfectly with certification criteria yet are instead shaped by the regulatory environment. Instruments that promote financial sustainability can address operational requirements; however, the regulatory environment is dispositive and not necessarily consistent with sustainability.

Target beneficiaries have a range of approaches to financial risk and opportunity, and there are distinct characteristics of the estimated 20 percent of fishers that are thriving and the 80 percent that are

struggling. The successful target beneficiaries demonstrate a realistic assessment of necessary financial resources, considering the tremendous uncertainties in the fishery.

Because fisheries face occasional capital expenditures (e.g., retrofitting vessels, purchasing quotas, etc.) and consistent operating expenditures (e.g., energy costs, labor costs, etc.), there are significant financial considerations to assess regarding the purchase of a vessel, gear, permits and quotas, and operational costs. This creates substantial barriers to entry and to flexibility.

Fisheries are entering a period of significant turnover as fishers age. The fishers who received permits and quota at the beginning of the era of regulation by quota are approaching retirement. Their vessels, permits, and quotas are the assets that they expect will fund their retirement. The value of permits and quotas has appreciated substantially.

The excessive costs place the necessary asset out of reach for younger fishers seeking to enter the fishery.

Likewise, the vessels are aging and will eventually need to be replaced with energy efficient models. Taken together, this is a binding constraint to turnover.

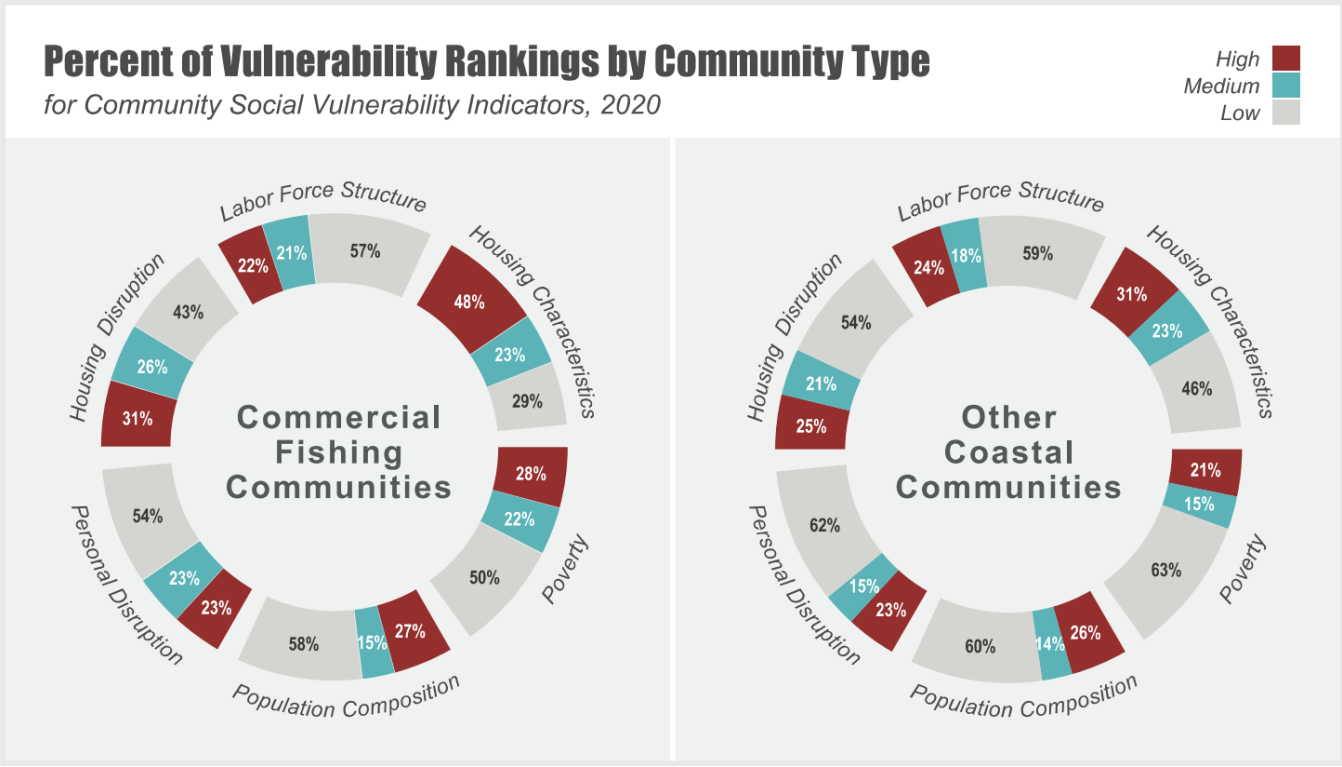

Figure 4: Social vulnerabilities in fishing vs. coastal communities. Credit: NOAA.

It is difficult to give fishers a price for their fish that is equal to their risk, level of effort, and sunk costs. Fishers have little influence on the market as the market is a *buyer's market*, which puts them at an economic disadvantage. They are price takers, not price makers. Catch prices respond too slowly to

rising costs, meaning that many costs have to be absorbed by the fishers, such as geopolitics impacting marine diesel prices.

There are also substantial labor issues that affect the economics of fishing. Although earnings can be good for crew on a well-managed vessel, most captains are finding it difficult to hire a quality crew.

Attracting appropriate crew is a quality-of-life issue and an important risk mitigation strategy. For example, as fishing can be seasonal or inconsistent, owning a home that requires a consistent mortgage payment or being able to pay for health insurance is often beyond reach for many fishers.

There is little or no resistance on the part of fishers interviewed to access financial support, e.g., loans linked to sustainability (although the definition of sustainability is subject to negotiation). The challenge is not whether to finance, but how to finance. The constraints to finance can be summarized as:

- **Inability to Collateralize Permits and Quotas:** A lien cannot be put on permit or quota, and if they could, in most cases, a lender would not know how to value the permit or quota (e.g., how does a bank's credit committee value a permit or quota initially and periodically to update the value as a function of acute and chronic risks and broader economic concerns?), or what to do with it if a borrower were to default.
- **Cascading Credit Risks:** Historically, a fisher could more easily get a mortgage on a house, which they could pledge as collateral to finance a vessel. Yet if the fishery struggles, the cascading credit risk migrates from the vessel to the mortgage. Two factors now make that difficult – the recent introduction of quota that must be purchased, and, specifically in New England, the gentrification of the coastal areas, which has rendered housing unaffordable.
- **Bankers' Limitations:** While there exist banks that have historically loaned to fishers, these bankers are "aging out" and are not being replaced by bankers with trade knowledge. Finally, those bankers who understand fisheries may be at state licensed banks and thus prohibited from working across multiple states.
- **Fishers Financial Acumen:** Many fishers for example have not considered that they would face a substantial capital gains tax when they sell their assets. For example, a third-party who purchases fish from fisherman may also conduct bookkeeping, forecast financials, summarize accounts for use by accountants to enable federal and state tax reporting, and produce monthly financial reports used by lenders.

The successful fishers interviewed have some common characteristics. Most importantly, they are highly adaptable. Factors favoring adaptability include business acumen and an understanding of finance and investment, as well as willingness to take risks and try new approaches, including the adoption of new technology and different gear, and diversification of target fish stocks. They are also transparent and fair in their dealings with their crews.

Many of those interviewed argue that fishers need to get big or get out of the fishery. Some consolidation is thought to be a good thing for a variety of reasons, including:

1. The inefficiencies of small vessels, including fuel.
2. The need to reduce the number of boats to "right size" the fishery.

On the other hand, there is a cohort that sees the fishery more holistically. They look at a fishery as part of the social infrastructure of a community and find substantial value in small-scale fisheries that is not accounted for in simple economic terms. In addition, the most sustainable fisheries, in terms of bycatch and waste, are the small-scale hook fisheries (e.g., jig and fixed longline). There is only one active handline fisher on Cape Cod, the heir to a 400-year legacy. To be viable as a business, this fisherman only needs a miniscule amount of quota, but he can no longer afford even that.

An argument could be made that these greener small-scale fisheries are beneficial and could be supported through preferential financial mechanisms and tax incentives. Such economic (and cultural) impacts may be lost if the small-scale fishery is put out of business by bigger ships that benefit from economies of scale.

Recommendations

Strategies for improving the financial dimensions of fisheries identified include:

- Develop an off-ramp for unsuccessful fishers, such as alternative waterfront employment, and an on-ramp for more sustainable (greener) fishers.
- Address the issue of collateral by de-risking bank loans through some form of guarantee program, which could be a government program or some form of revolving fund.
- Professionalize the industry. Training the next generation of fishers in how to succeed *in a green economy* was one of the most frequently identified needs among those interviewed.
- Establish or enhance a support ecosystem for fisheries. Support identified included mentoring, professional services that are targeted to fisheries including accounting and business management, tax reporting, marketing, and compliance. A frequently expressed need was stability in the sector, often contrasting the role that NOAA Fisheries plays as a manager of fish with the role that the USDA plays as an advocate for farmers. During the same period NOAA provided $2 million in funds through the Young Fishermen's Development Act and $124 million in its fisheries finance loan program.
- Improve the collection and analysis of catch and market data to identify trends and better manage uncertainty, thus de-risking some aspects of fisheries and reducing the extreme uncertainty that affects access to finance.
- Ensure that interventions improve social capital in an industry long known for fierce competition and mistrust. Collective action may be necessary to achieve many measures necessary to improve resilience in the fisheries, such cooperative enterprises to address economic obstacles such as access to financial services and access to markets. The NGOs supporting fisheries are playing an important role that could be recognized and enhanced.
- Recognize that regulations are in some cases barriers to resilience.
- Extend financial leverage to fishing communities. Each of the fisheries reviewed identified community needs unique to the locality. Examples may include housing subsidies for working fishers in gentrified areas such as New England where local laws require residency in a township in order to access nearshore resources, access to concessionary finance for fish houses and fish buyers that benefit communities, support for community services that benefit the transmission of culture to native fishing communities, and support for rigorous, comprehensive analysis of the contributions of fisheries to local economics.