



Sustaining America's Fisheries and Fishing Communities

AN EVALUATION OF INCENTIVE-BASED MANAGEMENT



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ENVIRONMENTAL DEFENSE

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Executive Summary

THE CURRENT STATE of America's fisheries is clearly unacceptable. Fifty-four stocks are classified as overfished, 45 stocks are experiencing overfishing and just over half of the nation's stocks remain in an uncertain status. Due to declining stocks and lost fishing opportunity, more than 72,000 jobs have been lost in the Pacific Northwest alone. The typical fisherman now makes nearly 30% less than the average male American worker and his job is 35 times more dangerous. Despite decades of management, fisheries and fishing communities are still suffering. Something is wrong and must be changed.

It is commonly agreed that, to be well-managed, a fishery needs:

- ▲ A catch limit — a scientifically-determined, fully enforced limit on the total number of fish caught and landed
- ▲ Controls on bycatch — the unintentional killing of fish and other ocean life
- ▲ Conservation of important marine habitat

Yet the conventional fishery management system has proven unreliable in protecting fish or fishermen in the United States, even when these three components are present. This failure is a fundamental consequence of trying to manage fisheries as a commons. In a commons, where shares of the catch are not specified, each fisherman's economic survival is predicated on his ability to fish as hard as possible whenever possible.

As stocks (predictably) decline, this dynamic often plays out in a spiral of depletion and economic failure. Fishermen deploy excessive amounts of capital and fishing effort in order to catch dwin-

dling numbers of fish, resulting sometimes in the collapse of entire fishing fleets.

But the tide is turning. This study shows that we can simultaneously protect the environment; increase profits; provide higher quality fish; create more full-time jobs; and save lives. The crucial missing ingredient is the inclusion of economic incentives as a key feature of fisheries management.

Innovative, incentive-based tools are emerging that align the economic interests of fishermen with ecological and safety concerns. These tools, similar to other modern public resource management systems, are variously known as "catch shares" or "Limited Access Privilege Programs" (LAPPs). They are the final puzzle piece to saving our fisheries and fishing communities.

Catch shares work by allocating a dedicated percentage share of a fishery's total catch to individual fishermen, communities or associations. If a fishery is well managed, the value of these shares increases as the stock expands. When participants have a secure portion of the catch, they





gain the flexibility to make business decisions that improve safety, enhance the value of their asset and promote healthy fishing stocks.

This idea is not new. But until now, there had been no comprehensive, data-driven study to measure its effectiveness in recent years. With seven federal fisheries under catch share management, and several more under consideration for catch shares at the beginning of this study, clearly a need existed to assess performance and provide guidance going forward.

To fill that void, Environmental Defense assembled a team of 30 specialists. They reviewed more than 150 papers and studies; collected data on nearly 100 U.S. fisheries; performed in-depth analysis of the 10 existing U.S. and shared stock U.S.-Canadian catch share fisheries; and conducted field work in three existing catch share fisheries, as well as two others contemplating a transition. [A detailed methodology is included as Appendix D of this report.]

“Sustaining America’s Fisheries and Fishing Communities” was a 14-month, \$1.2 million project undertaken by Environmental Defense in partnership with the Gordon and Betty Moore Foundation. A key member of the team was the Redstone Strategy Group, who performed quantitative evaluations of the industry as a whole, as well as each existing catch share program. Redstone brought to the table objective, cross-industry, global expertise in market-sector research. In addition, Professor Lawrence White of New York University conducted a comparative analysis of public resource allocation processes (see Appendix A).

This project documents how catch share fisheries in the United States and British Columbia perform against key environmental, economic, and social goals since converting from conventional management to catch shares.

CATCH SHARES: TRULY IMPRESSIVE RESULTS

- ▲ **Catching within limits** — All catch share fisheries have catch limits and compliance rises dramatically. In fact, on average, landings were 5% below the cap.
- ▲ **Improved science and monitoring** — Nearly three-quarters of catch share fisheries have monitoring, compared to just one-quarter of non-catch share fisheries. Biomass estimates were significantly more precise.
- ▲ **Reducing bycatch** — Bycatch was reduced by more than 40%, which, together with the benefits from complying with catch limits, each year saves the equivalent of the annual seafood consumption of 16 million Americans.
- ▲ **Limiting fishing impact on habitat** — catch share fisheries deploy 20% less gear to catch the same amount of fish; less gear in the water likely results in reduced habitat destruction. All of the catch share fisheries also make use of ecosystem protection tools like time or area-based closures.
- ▲ **Safety** — Under catch shares, safety more than doubled, based on an index of vessels lost, lives lost, search and rescue missions and recorded safety violations.
- ▲ **Economic performance** — Revenues per boat increased by 80% due to higher yields and dockside prices.

Despite all their benefits, however, catch shares do change the business of fishing.

For example, job stability markedly improves under catch shares. But the nature of those jobs changes. Averaged over a year, a typical crew position before catch shares would have provided the equivalent of just one-half day of work per week. Afterwards, that potential rose to more than four days of work per week. But this welcome increase in full-time employment has



consequences; the total number of available crew positions decreased by half.

Similarly, while major concentrations in fleet ownership did not result from catch share programs, the viability of some small-scale operators and ports may indeed be reduced as fishing businesses adapt.

Fortunately, as we discuss in this report, the careful design of catch share programs can mitigate these transition costs, and the substantial new value generated by catch shares makes it possible to do so.

Over the years, observers have questioned the necessity and utility of incentive-based fisheries management. This report responds to those questions, and, we believe, demonstrates that aligning fishermen's economic incentives with society's conservation goals is indeed a powerful, effective and desirable policy outcome.

Simply put, when well-designed catch shares are added to the fisheries management mix, environmental damage decreases significantly and economic performance increases substantially. As such, it's not surprising that fisheries with catch share systems are seven times more likely than conventional systems to be rated "well managed" by the Marine Stewardship Council's independent third-party certification process.

RECOMMENDATIONS

IMPLEMENT CATCH SHARES

Catch shares, when well-designed, are a key component in successful fisheries management and should be implemented more widely in order to build sustainable fisheries and vibrant fishing communities.

ENSURE ROBUST AND EFFECTIVE DESIGN

Educate stakeholders on catch share programs and options. Stakeholders should draw on this detailed body of knowledge regarding design elements, frequently encountered barriers and successful strategies to create catch share systems that maximize benefit and minimize transition costs for their fisheries.

Improve efficiency of design process. Program design should be done by small groups of representative stakeholders with clear instructions from state and federal managers as to goals and timetables for decision-making. Another critical element is credible conflict-of-interest standards for members of the design committee.

Prioritize funding for catch share design process. In light of their ability to help fisheries meet multiple objectives, funding should be prioritized to implement catch shares. In addition, we recommend exploring ways to tap improved fishing economics through public-private financing initiatives.

INVEST IN THE FUTURE

Some of the increase in value created by catch shares should be reinvested in the fisheries and fishing communities. New revenues can help run catch share systems; improve data collection; achieve the social objectives of particular communities; or increase the levels of monitoring, enforcement and research.

EMPLOY THOROUGH REVIEW AND ADAPTATION PROCESSES

Catch share programs must be adaptive. They need to have strong regular reviews in order to regularly improve performance and address any new issues that may arise. This requires updated science as well as a robust process for addressing necessary management changes.

