

The Economic Performance of U.S. Catch Share Programs

Executive Summary

Catch share programs are a fishery management tool that dedicates a secure share of quota allowing individual fishermen, fishing cooperatives, fishing communities, or other entities to harvest a fixed amount of fish. With clearly defined fishing privileges, fishermen no longer need to “race to fish,” but instead can make harvest decisions based upon market conditions, improving economic performance, and weather conditions, which improves crew safety. These incentives can reduce the cost of taking conservation actions and can encourage individual fishing choices that are more consistent with sustainable fishing practices such as reducing low-value or undersized catch that is discarded at sea but is frequently associated with high mortality rates. The ability to align fishermen’s economic incentives with the long-term biological health of the fishery singularly distinguishes catch share programs from traditional fishery management strategies (i.e., trip limits, gear restrictions, etc.).

Nationwide, there are 15 catch share programs currently in operation (see Box 1). There are both striking differences as well as strong similarities among the programs. Six of the eight federal Fishery Management Councils have implemented at least one program; the most programs are in the Alaska region. Implementation dates of these programs span three decades, with five programs established in the 1990s, but the majority of programs (seven) were established in the past five years. Nine programs manage a single species or, in some cases, two species but as separate management units; the other six programs manage multiple species.

The term “catch share” includes specific programs defined in the Reauthorized Magnuson-Stevens Act (2007), such as “Limited Access Privilege Program”, “Individual Fishing Quota (IFQ)” programs, and other exclusive allocation measures such as Territorial Use Rights Fisheries. Catch share programs are designed by Regional Fishery Management Councils with significant stakeholder input. Catch share program design varies widely across programs and regions, reflecting unique fishery characteristics and program objectives. However, a substantial number of catch share programs have several objectives in common. The most frequently stated

Box 1. U.S. Catch Share Programs By Fishery Management Council*

New England

Northeast General Category Atlantic Sea Scallop IFQ, 2010

Northeast Multispecies Sectors, 2010

Mid-Atlantic

Mid-Atlantic Surfclam and Ocean Quahog ITQ, 1990

Mid-Atlantic Golden Tilefish IFQ, 2009

South Atlantic

South Atlantic Wreckfish ITQ, 1992**

Gulf of Mexico

Gulf of Mexico Red Snapper IFQ, 2007

Gulf of Mexico Grouper-Tilefish IFQ, 2010

Pacific

Pacific Coast Sablefish Permit Stacking, 2001

Pacific Groundfish Trawl Rationalization, 2011

North Pacific

Western Alaska Community Development Quota, 1992**

Alaska Halibut and Sablefish IFQ, 1995

American Fisheries Act (AFA) Pollock Cooperatives, 1999

Bering Sea and Aleutian Islands Crab Rationalization Program, 2005

Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80), 2008

Central Gulf of Alaska Rockfish Cooperatives, 2012

*The year corresponds to the implementation date for each Program

**Program not included in this report.

program objectives are to meet conservation requirements, improve economic efficiency and/or flexibility, reduce excess capacity, eliminate derby fishing conditions and to improve safety at sea.

In this report, we provide information on 13 of the 15 catch share programs listed in Box 1. Of these 13 programs, only Baseline Period¹ indicator values are reported for the Central Gulf of Alaska Rockfish Cooperatives since it was recently implemented in 2012 leaving 12 program assessments. However, the report treats the Surfclam² ITQ and the Ocean Quahog ITQ, jointly implemented under the Mid-Atlantic Surfclam and Ocean Quahog ITQ, as well as the Halibut IFQ and the Sablefish IFQ, jointly implemented under the Alaska Halibut and Sablefish IFQ, as separate programs. Thus, 14 distinct program assessments are included in this report³.

Catch share fishery performance is compared to a baseline period prior to catch share program implementation. This means that factors such as changing market conditions or natural variability in target and non-target fish stocks affecting fishery performance that were concurrent, but not attributable to catch shares, are not controlled for in the analysis. The longer a catch share program has been in place the more likely the fishery has experienced some of these changes. This distinction is important in interpretation of results. While performance indicators may improve (or decline) under catch shares, one should take care in not assuming cause and effect.

Catch share programs are evaluated using a standard set of indicators that measure the basic economic performance of catch share programs, regardless of their design. In addition, since management measures implemented under a catch share program may affect economic performance, we provide one metric for tracking the management context (whether quotas are increasing/decreasing) and two metrics for monitoring management performance (whether the annual quota was exceeded and season length for monitoring whether the race to fish has been eliminated).

How did the Programs Perform?

Overall, these programs were successful in having fishermen observe quota limits, improving overall economic benefits and efficiency, and ending the race to fish, thereby reducing pressure on fishermen to fish during unsafe conditions. Catch share programs have also been effective in reducing fishing capacity. However, catch share programs have had distributional consequences as reductions in the number of active vessels may have been counterbalanced by reductions in the number of shareholders. Findings for each of these common program objectives are discussed below.

Management Context and Performance Overall, annual harvest limits were rarely exceeded, with overages only occurring twice in the long history of the Mid-Atlantic Surfclam ITQ Program and in

¹ In all cases, except for the Crab Rationalization Program, the Baseline Period was defined as the average of the three years prior to implementation of the respective Catch Share Program. Non-consecutive years were used as the Baseline Period for the Crab Rationalization Program.

² In the original FMP "surf clam" was referred to as "surfclam. However, the Northeast Regional Office, Science Center, and Mid-Atlantic Council have adopted the common name of "surfclam" in place of "surf clam" a convention that will be used throughout this report.

³ The Wreckfish ITQ Program is not included due to confidentiality restrictions and the Alaska Community Development Quota (CDQ) program is not included because it is the only CDQ program and is inherently quite different in nature than the other programs.

the first year of the recently implemented Mid-Atlantic Golden Tilefish IFQ Program. This suggests that catch share programs, which generally include increased monitoring to improve accountability, have coincided with users' compliance with the quota.

Fees collected for the cost recovery programs can be a maximum of 3% of the ex-vessel value of landings. In the most recent year that data are available for each program, fees have ranged from \$21,000 (Mid-Atlantic Golden Tilefish IFQ Program) to \$6.7 million (Bering Sea and Aleutian Islands Crab Rationalization Program⁴), representing 0.38% and 2.7% of the landings revenue in these programs, respectively.

Catch share programs do not directly affect decisions about harvest quota levels, but indirectly affect these determinations because catch share programs are typically implemented coincident with enhanced catch accounting and monitoring requirements, which can reduce management uncertainty and scientific uncertainty. As such, nine of the programs were implemented coincident with reductions – some quite substantial – in total allowable catch, signifying that prior to the implementation of the catch share program harvest restrictions were ineffective and, in some cases, not sustainable⁵. Notably, quota reductions would have been necessary whether or not the catch share programs were implemented due to requirements in the Reauthorized Magnuson-Stevens Act. Only three programs (Mid-Atlantic Surfclam ITQ, Mid-Atlantic Golden Tilefish IFQ, and Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80) however, currently have quotas above their respective Baseline Periods.

Season length has increased for all catch share programs that had experienced shortened seasons caused by derby fishing during the Baseline Periods. These programs include Mid-Atlantic Golden Tilefish IFQ, Gulf of Mexico Red Snapper IFQ, Gulf of Mexico Grouper-Tilefish IFQ, Pacific Coast Sablefish Permit Stacking, Alaska Halibut IFQ, AFA Pollock Cooperatives, and Bering Sea and Aleutian Islands Crab IFQ. In the more extreme cases, the Pacific Coast Sablefish Permit Stacking Program season went from 9 to 210 days and the Alaska Halibut IFQ Program season went from 6 to 245 days. This report does not include any direct measures of fishing vessel safety. However, increased season length provides greater flexibility so that fishing is less likely to be undertaken in hazardous weather. For example, a detailed study of changes in fishing vessel safety of the Bering Sea and Aleutian Islands Crab IFQ Program found that the longer fishing season promoted operational changes in the fishery resulting in safer working conditions for crew and participating vessels.

In sum, the management performance and management context metrics present a somewhat mixed perspective on the catch share programs. On the one hand, fishermen are generally observing quota limits and derby fishing has been eliminated; but on the other hand, even though not directly tied to implementation of a catch share program, quota levels are generally not increasing, which may affect economic performance. In future years, we will expand the management context metrics to include information on whether stock status is improving. In addition to providing an indicator of performance for conservation goals included in most catch

⁴ The Crab Rationalization Program includes allocations of processor quota, as well as harvest allocations of crab to the IFQ Program and to coastal community groups: Community Development Quota and the Adak Community Allocation. The information provided in this Report refers to the IFQ Program.

⁵ Only the Mid-Atlantic Golden Tilefish IFQ, Pacific Coast Sablefish Permit Stacking and the Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80) Programs had an increase in quota under the first year of the program while the two remaining programs did not operate under a quota system prior to their implementation.

share programs, improved stock status should also provide additional insights into understanding quota trends.

Economic Benefits and Efficiency Several related performance indicators are used to monitor economic benefits and efficiency including aggregate revenue, revenue per vessel, quota utilization, and average price. In general, price and revenue based indicators are subject to uncertainty since market prices (hence revenue) are determined by market conditions that may be attributable to the catch share program (e.g., fishing season), but may also be influenced by factors that are external to the catch share program such as international trade, changing supply of substitute species, and the general economy. This just means that changes in these and other economic indicators may or may not be wholly attributable to catch share programs.

While quotas were reduced in the first year of operation in nearly all catch share programs, revenues from catch share species declined in nine of these programs while revenues (measured in inflation-adjusted 2010 dollars) increased in the five other programs. In the most recent year, catch share species revenue in most programs was below their respective Baseline Periods while aggregate catch share species revenues were above Baseline Period levels for four programs. Declines (increases) in catches and revenues may be due to reduced (increased) quotas or reduced (increased) market demand. With few exceptions, revenue per vessel increased during the first year of the program and has continued to increase. Quota utilization has also generally increased and has only fallen below the Baseline Period in each year following Program implementation in the Alaska Sablefish IFQ, Alaska Halibut IFQ, Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80) and the Bering Sea and Aleutian Islands Crab IFQ Programs. In addition, quota utilization has fallen below the Baseline Period for the Mid-Atlantic Surfclam and Ocean Quahog ITQ and the Gulf of Mexico Grouper-Tilefish IFQ Programs. Compared to the Baseline Period, average prices increased during the first year of the program in all but four catch share programs. Average prices have continued to increase over time in nearly every catch share program or have at least remained above prices received during the Baseline Period.

Catch share species revenue per vessel is used as a proxy measure of economic efficiency since the numerator captures a revenue-based measure of output and the denominator captures the fishing vessel input. Revenue per vessel improved during the first year of program implementation for 12 of the 14 evaluated programs. Revenue per vessel declined during year 1 in the Gulf of Mexico Grouper-Tilefish IFQ and the Mid-Atlantic Ocean Quahog Programs. Catch share species revenue per vessel is currently above Baseline Period levels in all but two catch share programs (Gulf of Mexico Red Snapper IFQ and Gulf of Mexico Grouper-Tilefish IFQ). Although a more complete evaluation of economic efficiency would include information on the cost of fishing, the proxy measure of catch share species revenue per vessel is suggestive that the economic efficiency objectives have been met.

Capacity Reduction Relative to the Baseline Period, all but one catch share program (Amendment 80 Non-Pollock Groundfish Cooperatives) resulted in immediate decreases in the number of vessels that participated in the catch share program in the first year of the program. Furthermore, with few exceptions, the number of active vessels has remained the same or declined over time. Thus, the program objective of reducing overcapacity (as measured by number of vessels) has largely been met.

Shareholders While a decrease in the number of active vessels reduces capacity, this trend coupled with a decrease in the number of entities holding shares and allocation in the first year and in subsequent years of the programs raises concerns about potential distributional effects. For programs that have been in existence for at least 10 years, about half of the reduction in entities holding share occurred during the first three years. Thus, experience to date has shown comparatively large distributive effects in the short term, while over the longer term annual changes in entities holding share have been more gradual. It is important to note, however, that these distributional effects were generally expected, which is why most catch share programs adopted share and allocation accumulation limits at the outset.

Future Assessments

NOAA Fisheries is committed to providing an annual economic performance review of its catch share programs. In this initial assessment, information on quotas, catch and landings, effort, revenues, share accumulation, and cost recovery data are used to evaluate performance. Some of the indicators used in the report do not directly assess the catch share program objective but, rather, are indirect proxies. For example, landings revenue (dock-side revenue without accounting for the cost of fishing) is used as a measure of economic benefits, which would be more appropriately measured by profits, which accounts for the cost of fishing. Similarly, season length is used as a general indicator of vessel safety instead of a more direct measure such as reduced accidents or fishing in less dangerous conditions; distributional impacts are measured by the number of entities holding shares rather than a direct measure of distributional effects; revenue per vessel is used to proxy vessel efficiency rather than formally computed efficiency measures from economic models of profit, cost or production; and no direct measure of stock status, which could be used to assess progress on conservation objectives, is included.

In future assessments, NOAA Fisheries will be developing more advanced indicators that address profitability, stock status, distributional issues and efficiency, amongst other topics. In addition, NOAA Fisheries plans to extend these metrics to selected non-catch share managed fisheries in 2013, phasing in additional fisheries in the out years.