



New England Fishery Management Council

FISHERIES
Leadership & Sustainability
FORUM

NEW ENGLAND CATCH SHARES WORKSHOP SUMMARY REPORT

**OCTOBER 20-21, 2009
BRETTON WOODS, NEW HAMPSHIRE**

Hosted by the

New England Fishery Management Council

and the

Fisheries Leadership and Sustainability Forum

in cooperation with the

Gulf of Maine Research Institute

Preface

The New England Fishery Management Council (NEFMC) and the Fisheries Leadership and Sustainability Forum (FLSF) hosted an educational workshop on catch shares programs in cooperation with the Gulf of Maine Research Institute (GMRI) from October 20-21, 2009 in Bretton Woods, New Hampshire. The purpose of the workshop was to share information and concerns about the use of catch shares in NEFMC-managed fisheries. Participants identified three main objectives for the workshop:

- Increase understanding of the science, economics, and policies related to catch shares
- Help decision-makers learn from successes, failures, and challenges in other regions
- Discuss catch shares in the context of decisions that have already been approved in New England with an eye towards future direction and action

Workshop participants partook in four breakout sessions; each consisted of a diverse panel of experts who provided insight from their own experiences and made recommendations regarding how their lessons learned can be applied to fisheries management in New England. Experts represented other U.S. regions and other countries, and included council members and staff, government employees, non-governmental organization leaders, technical advisors, industry representatives, and fishermen. The agenda, panelist biographies, pre-workshop survey results, and workshop presentations are available on the FLSF website, <http://www.fisheriesforum.org/>.

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Workshop Overview

The New England Fishery Management Council (NEFMC) and the Fisheries Leadership & Sustainability Forum (FLSF), in cooperation with the Gulf of Maine Research Institute (GMRI), sponsored a Catch Shares Workshop in October 2009. The purpose of the workshop was to provide an educational opportunity for NEFMC members, council staff, and Mid-Atlantic Fishery Management Council leadership to learn from the experience of other regions in the development and implementation of catch shares programs.

During the two-day workshop, thirteen panelists from around the world shared their experiences—the benefits, challenges, and lessons learned—with decision makers from New England. The panelists included National Marine Fisheries Service (NMFS) leadership, fishermen, industry representatives, technical advisors, non-governmental organization leaders, as well as former and current government agency representatives.

The workshop agenda was based on the results of a survey developed by FLSF and distributed to participants in advance of the workshop. Organizers used the results to identify areas where participants wanted additional information.

The workshop began with a plenary session for all participants. John Pappalardo, the Chair of the NEFMC, welcomed participants and outlined the purpose of the workshop. Chris Kellogg, Deputy Director of the NEFMC, provided an overview of New England fisheries, including species composition, landings value, and current management plans. Amy Kenney, FLSF Co-Director, concluded the plenary session with an introductory presentation on catch shares and set forth the agenda for the workshop. She introduced the topics, panelists, and moderators for the breakout sessions.

Participants rotated through four breakout sessions, which included panel discussions on Pacific groundfish; the many flavors of catch shares; fishing communities and catch shares; and data collection and monitoring programs. Each breakout session provided participants with an opportunity to engage directly with panelists and enabled small group discussions. Following the breakout sessions, participants reconvened to debrief and discuss the high points and lessons learned from each of the panel discussions.

Monica Medina, Senior Advisor to the National Oceanic and Atmospheric Administration (NOAA) Administrator, gave the keynote address, focusing her remarks on the Catch Shares Task Force. She invited comments from participants and responded to their questions and concerns. The workshop concluded with a discussion about lessons learned from the workshop and ways to look forward. The following workshop summary describes the presentations and discussions from the workshop.

Pre-Workshop Survey Summary

Prior to the workshop, the FLSF invited participants to complete a scoping survey. The survey identified areas of interest to help inform and guide the development of the agenda and the

selection of panelists. Thirty-three responses were collected (a 72% response rate for confirmed attendees). The questions contained in the survey were intended to explore participants' current opinions about catch shares, gauge their interest in topics, and identify areas in which they desired additional information.

Over 75 percent of survey respondents felt that catch shares management has the potential to address some of the challenges and management priorities in New England. The most commonly identified potential benefits of catch shares programs included accountability of individuals, strict adherence to the total allowable catch (TAC), and improved economic health of the fishing industry. The challenges identified by respondents included initial allocation, effective monitoring and enforcement, and implementation costs. Respondents were also asked to identify the aspects of catch shares that could be the most contentious in New England, and the two aspects most frequently identified were determination of initial allocation and cost to industry.

Respondents were asked a variety of ranking questions to identify their most desired informational needs as they relate to five discrete components of catch shares management. The chart below illustrates the top two responses to each question:

Management Component	Response
Design/Policy Decisions	<ul style="list-style-type: none"> • Limits on consolidation/excessive shares • Transferability of the privilege
Initial Allocation	<ul style="list-style-type: none"> • Definition of allocation goals • Determination of the allocation formula/process and free allocation vs. auction allocation
Program Administration	<ul style="list-style-type: none"> • Ongoing allocation/redistribution of quota • Determination and distribution of annual harvest privilege
Monitoring and Enforcement	<ul style="list-style-type: none"> • Catch-based monitoring • Landing-based monitoring
Ongoing Informational Needs	<ul style="list-style-type: none"> • Permit valuation and markets for tradable privileges

To help identify which existing catch shares programs would be most useful to highlight at the workshop, the survey included questions about the specific outcomes and programs that respondents would like to learn more about. Fleet rationalization/capacity reduction and impacts on owner-operators and crewmembers were the two most commonly cited outcomes for which information is desired. Specific catch shares program information was requested most frequently

for British Columbia groundfish, western Alaska community development quotas (CDQs), Iceland and New Zealand individual transferable quotas (ITQs), Alaska halibut and sablefish, Pacific groundfish, Alaska pollock cooperatives, and Mid-Atlantic surf clam and ocean quahog.

The results of the scoping survey were valuable in identifying respondents' interests and in developing a workshop that provided participants with their desired information. FLSF provided the results of the survey to the panelists to help frame their presentations and focus on the lessons learned from their regions that would be most relevant to New England. The full report of survey results was distributed to workshop participants in their briefing books and is available on the FLSF website.

New England Fisheries

The workshop began with a review of the current status of New England fisheries and of the management framework that is either in place or is being developed and/or implemented. NEFMC staff compiled a summary of each fishery to look at the status of the stocks, participation and effort in the fishery, trends in landings, value of the fishery, and management of the fishery among other characteristics. The availability of this information allowed experts and participants to understand the fisheries in the region. For those with a familiarity of the region, the information provided them a different and comparative perspective. The summary of the New England fisheries can be found in Appendix 1.

Catch Shares Overview

Amy Kenney, FLSF Co-Director, concluded the plenary session with an introductory presentation on catch shares. Kenney began by laying out the definition, use, and basic design elements of catch shares programs. A catch shares program sets a biologically based annual catch limit for each fish stock and allocates a specific portion of that catch limit to entities such as fishermen, cooperatives, and/or communities. Catch shares can take many forms, including individual fishing quotas, individual transferable quotas, limited and dedicated access privileges, community allocations, regional fishery associations, sector allocations, and fishery cooperatives.

Kenney highlighted where catch shares programs have been implemented around the world and in the U.S specifically. Her presentation identified key design and implementation elements including: identifying management goals, identifying eligible participants, setting limits, and ensuring effective monitoring and enforcement. Kenney also set forth the agenda for the workshop and introduced the topics, panelists, and moderators for the breakout sessions.

Breakout Sessions

Pacific Groundfish

Panelists:

- Don McIsaac, Executive Director, Pacific Fishery Management Council (PFMC)
- Merrick Burden, Senior Analyst, PFMC
- Don Hansen, Former Council Chair and Advisory Panel Chair, PFMC

- Tommy Ancona, Fisherman and Groundfish Advisory Panel Chair

The four panelists in the Pacific Groundfish session provided different perspectives on the Pacific groundfish rationalization program, from a broad-level overview of the entire program to the individual experience of one California port. The Pacific groundfish fishery will transition to an ITQ system in 2010 following a seven-year development process. As one of the most recent catch shares programs to take effect, it has taken shape in the same regulatory environment in which New England will transition to sector management. The Pacific groundfish fishery, particularly the non-whiting (multispecies) trawl fishery, shares key similarities with the New England multispecies fishery. Both fisheries are managed as a multispecies complex and include a mix of healthy stocks and depleted stocks, such that the harvest of healthy stocks may be constrained by the available catch of weaker stocks. Consequently, both regions are interested in finding ways to maximize yield of healthy stocks and in structuring incentives to reduce bycatch

New England also faces similar challenges in terms of overcapitalization, new data, and enforcement needs in addition to socioeconomic impacts of consolidation on fishing communities. Discussion focused on similarities and differences between the two fisheries, the process by which the PFMC arrived at the current allocation formula, social objectives of the fisheries, and the infrastructure and associated costs of administering a catch shares program.

Don McIsaac:

The Pacific groundfish trawl fishery's catch shares program is in year six of a seven-year development process scheduled for completion in 2010. The trawl rationalization program is intended to increase fleet efficiency and address the consequences of restrictive input controls, particularly bycatch and regulatory discards. The program establishes an individual fishing quota (IFQ) program for the shore-side component of the whiting and non-whiting trawl fisheries and cooperatives for the at-sea whiting fishery, which consists of catcher-processors and at-sea motherships. Shares in the IFQ-managed trawl fishery will be based on a "50/50" allocation formula where half of the annual catch will be allocated by equal sharing, and the other half will be allocated by catch history. Quota accumulation limits will be set for each species. An Adaptive Management Program will reserve 10% of the annual catch to provide for community protection, any unintended consequences, and gear switching. Observer coverage is set at 100%. The final program is scheduled for implementation in 2011 following secretarial review.

Merrick Burden:

The PFMC considered cooperatives and IFQs the most appropriate models for different components of the Pacific groundfish fishery and analyzed the predicted impacts of the rationalization program. The PFMC anticipates fleet consolidation, an increase in the catch of underutilized species, and changes in fishing behavior and the location of fishing activity. In particular, the combination of individual accountability and 100% observer coverage will become incentives to reduce bycatch of constraining stocks. Following consolidation, some jobs will be lost but those remaining will pay better wages. Over time, the fishery has the potential to double in value. Rationalization will impact some ports more than others, depending on factors such as fleet efficiency, shore-based infrastructure, and initial quota allocation in addition to spatial concentrations of constraining bycatch species.

Don Hansen and Tommy Ancona:

To help provide insight into a Council-level and a participant point of view, respectively, these panelists offered their presentation time for questions and answers.

Lessons Learned:

Panelists emphasized the importance of conducting regular public outreach as a way to engage stakeholders, share information, elicit feedback, and correct misinformation. Stakeholders benefit from having the most up-to-date information, even if the program is still evolving, so that they can gauge how they will be affected under different management scenarios. Addressing contentious issues, such as allocation, openly and early in the process allows stakeholders to make decisions and ask questions based on more complete information. The details of cost recovery, observer coverage, and data collection – and in particular any costs of a program that are passed along to fishermen – can also be included in the outreach process.

In addition to setting accumulation caps on shares of individuals stocks in the management complex, it is possible to set a comprehensive definition of “control” (excess shares) that can accommodate unforeseen arrangements. It can be difficult to anticipate in advance all of the ways in which an individual could accumulate quota shares (i.e., part ownership in multiple businesses). More broadly speaking, it is important to plan for unintended consequences throughout a catch shares program by building in flexibility and tools such as the adaptive management plan.

Data collection and monitoring programs, while the subject of a separate breakout session, were also discussed in this session in the context of the Pacific groundfish fishery. While real-time data collection is critical to the success of a catch shares program, it should be viewed as an investment. It requires multiple levels of partnership and takes time to develop and refine.

The socio-economic impacts of transitioning to catch shares management were another major focus of discussion. Lessons from both regions have demonstrated that the economically efficient outcome and the socially desirable outcome are often not the same thing. While it is possible to manage for socioeconomic outcomes, transition will nevertheless require a departure from the status quo.

Participants are concerned that New England is transitioning to catch shares management on a shorter timeline than was used in the Pacific groundfish rationalization program. The general consensus among panelists and the overarching message of this breakout session was that it would be unrealistic to expect managers to create the “perfect” program prior to implementation, and moreover that delays may prove costly. Catch shares programs, like any management plan, should be viewed as a work in progress. An effective program is not a static product or an instant solution but an evolving work in progress, which requires maintenance to achieve management goals. While there are important lessons to be learned from the experiences of other regions, it is important to tailor any catch shares program to the needs of the fishery in question.

The Many Flavors of Catch Shares

Panelists:

- Jonathan Peacey, Strategic Project Analyst, New Zealand Ministry of Fisheries

- Bruce Turris, Consultant, British Columbia
- Mark Holliday, Ph.D., Director of the Office of Policy, NOAA
- Joe Childers, Fisherman, Alaska

This breakout session provided participants an opportunity to learn about several different catch shares programs internationally and domestically in British Columbia, New Zealand, and Alaska. Current and former government officials provided insight into the challenges that their fisheries were facing prior to the transition to a catch shares program, the goals and rationale for the change to a catch shares program, and feedback on the things that they would have done differently. A fisherman also provided perspective regarding the impact on fishing and changes in behavior with the implementation of catch shares programs. Catch shares programs around the world vary greatly in size, scope, species, incentives, penalties, goals, and impacts; articulating the goals of the program and the projected outcome are essential steps.

Jonathan Peacey:

New Zealand is approximately the size of two New England states with a population of four million people. They have a Parliamentary style of democracy with no states or provinces. New Zealand has the fifth largest exclusive economic zone (EEZ) in the world, but it has a relatively small continental shelf. New Zealand has a short history of commercial fishing in addition to Maori (native) fisheries and important recreational fisheries. Across the country, the population is relatively poor with a low per capita income. Generally speaking, the fish stocks in New Zealand are in good shape, but there are a couple of exceptions such as orange roughy.

Leading up to the implementation of catch shares, New Zealand experienced overfishing inshore, declining stocks, increased costs, and over-capitalization. Although the deepwater stocks were not overfished, New Zealand wanted to exclude international fishers from their EEZ. Initially, New Zealand began a quota program in deep water then brought in a comprehensive program that spans almost all of its fisheries. The program began with quotas in kilograms then moved to percentages. The New Zealand government entered the market to purchase quota for the Iwi tribe as settlement for past grievances. The Quota Management System (QMS) in New Zealand was instituted in 1986 with 26 species and 156 stocks. As of 2009, there are a total of 97 species and 632 stocks in the QMS. The current value of quota is approximately four billion dollars, calculated as the net present value of the future income stream.

The QMS has the following characteristics:

- **Duration** – In perpetuity
- **Allocation method** – Based on catch history
- **Appeals Process** – Extensive. The appeals process has caused reallocation of quota among participants depending on outcome of appeal.
- **ITQ Ownership rights** – In perpetuity; can be bought or sold permanently; quantified in percentages. Quota can be used as collateral with banks.
- **Annual Catch Entitlements (ACE)** – Separately tradable from ITQ on an annual basis in kilograms. If you catch more than your ACE, you pay the government a deemed value or purchase ACE to cover your catch. The deemed value or fee steps up as you go over your ACE by larger quantities. If you get ACE to cover your catch, then the government will refund the deemed value paid.

- **Total Allowable Commercial Catches (TACC)** – Set after allowing for recreational and non-commercial fishers and other sources of mortality
- **Transferability** – Accommodates both permanent transfers (quota) and temporary transfers (ACE)
- **Trading Registry** – Single-industry owned and run registry system
- **Monitoring** – Approximately 30% of fisheries are monitored via observers.
- **Penalties** – Misreporting data is a criminal offense and subject to fines up to 250,000 dollars, loss of quota, and potential jail time.

As a result of the QMS, there has been improved cooperation between fishers and government. The system has led to the formation of Commercial Stakeholder Organizations that represent owners, take research surveys, develop mitigation measures, and take management initiative. New Zealand is also starting to see companies use one vessel on behalf of two quota holders.

New Zealand set goals of economic efficiency and biological sustainability in its transformation to a QMS and developed regulations and management measures to support those goals. Clearly set goals will help to define what issues are important to address versus what issues can become secondary and/or tertiary. In order for a catch shares program to succeed, there needs to be a holistic review of all of the programs and regulations for the fisheries including enforcement, compliance, penalties, observers, data collection, registries, information systems, monitoring, and scientific data collection. In retrospect, New Zealand would likely have reconsidered excluding part-time fishermen (individuals who did not make 80% of their income or 10,000 dollars from fishing) prior to the implementation of its QMS. They would have gone to a percentage allocation program rather than allocation by kilograms at the outset. The original appeals process was too extensive and undermined the system, but its scope has been narrowed over time.

Bruce Turris:

British Columbia has an extensive commercial fishing history with open access. Prior to the transition to catch shares management, TAC limits were continuously exceeded, competition for fish was high, the cost of fishing was high, landing prices were low, stocks could not be managed on a stock or area specific basis, safety at sea was a concern, overfishing was occurring in many species, and bycatch was a constant challenge to accurately assess and manage in virtually all fisheries. As a result, the Department of Fisheries (DFO) set forth criteria that the industry had to meet or face closure. The criteria were as follows:

1. All groundfish landings and discards must be accounted for.
2. Groundfish will be managed on a stock specific basis.
3. Fishermen will be individually accountable for their catch.
4. New monitoring standards (dockside and at-sea) will be established and implemented to meet the above three objectives.

In order to fulfill these criteria, British Columbia transitioned to a catch shares program. It now covers more than 61 stocks, 300 active vessels, and 104,000 metric tons of landed fish annually. All catch either retained or discarded must be accounted for, and every vessel must possess or acquire quota to cover the fish caught within 30 days of landing their catch. This system allows managers to subtract all mortality, especially bycatch from the TAC. Many of the traditional

management measures have been retained including quota caps by species, at-sea monitoring, size limits, gear restrictions, and area closures for biological reasons. There are some species that still do not have TACs, but their trip limits remain in place.

Some of the major characteristics of the British Columbia Groundfish Individual Vessel Quotas (IVQs) are as follows:

- **Duration** – Revocable and modifiable by the Minister of Fisheries
- **Allocation** – Various formulas employed including equal shares, historical performance, vessel length, or a combination of any or all of the above
- **Carryover** – If a vessel is unable to cover all of its catch through transfers, then it may take the excess catch off of next year's allotment.
- **Transferability** – Accommodates both permanent and temporary transfers but catch must be covered within 30 days of landing
- **Trading Registry** – All trades must be approved by the government but the registry is facilitated by third party private firms
- **Monitoring** – 100% coverage either on-board observers or video monitoring
Costs are split between government (1/3 of costs) and industry (2/3 of costs).
For video monitoring: 10% of the video is reviewed and compared to the vessel log books to keep costs down, but if there is a wide discrepancy then additional review is born by the owner of the vessel.

As a result of the transition, the majority of stocks are in good shape, stock assessments and scientific information have improved, data can accurately assess true mortality, incentives are in place to under-harvest, and catch has been under the TAC for almost every year. Now fishermen can get a report of their remaining quota within 48 hours of reporting their catch. Industry and government share the costs of the program, including monitoring.

There have also been both increases in flexibility for fishermen (multi-quota boats, reduced discards, increased number of days-at-sea) and a consolidation of boats by 50%. British Columbia has largely maintained its small boat owner-operator fishery throughout the transition to IVQs. The value of fish landed and the value of quota have increased substantially.

In hindsight, the government would likely have transitioned directly to catch shares rather than starting with a limited entry program first. Virtually every year since the institution of the catch shares program the fishery has not exceeded its TAC. The total accountability allowed DFO to reduce all catch from the TAC, which resulted in more accurate data for stock assessments. Transferability was essential to the system when dealing with a multi-species complex and addressing bycatch. Leasing can create some social ills, but it also allows new participants to enter the fishery by leasing quota and building up funds to purchase quota. There is still a need to improve access to capital since quota is not considered property. At-sea and dockside monitoring are essential.

Mark Holliday:

Catch shares programs can have almost infinite variety and flexibility. A truism of catch shares is that no one size fits all. Speaking broadly, quota programs will incentivize fishermen to change their behavior.

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), some catch shares programs are covered in the limited access privilege programs but not all. Although conceptually these programs are based on the same principle, there are legal distinctions under the MSA that will affect cost recovery and referendum requirements. The MSA does not allow the granting of privileges in perpetuity; instead, they have a 10 year life span that can be renewed. Additionally, the MSA allows managers to recover some of the cost of the program and to set aside some of that funding for new entrants.

In a review of the current catch shares programs in the US, there were nine former derby fisheries that have been rectified with catch shares programs. More specifically, the Gulf of Mexico red snapper fishery used to go way over their TAC, but they are now under the TAC. Currently, there are twelve catch shares programs in place with five more programs being developed. NOAA has also identified 32 programs that may be good candidates for catch shares. Most Alaskan fisheries are under some form of a catch shares program. Many of these programs were intended to achieve economic and social goals, and the stocks were not overfished at the time the programs were implemented.

In Western Alaska, the CDQ program was developed to achieve social and economic objectives. Ten percent of the quota is taken off the top from several fisheries in the Bering Sea and Aleutian Island (BSAI) fisheries and granted to rural communities. This CDQ program was a separately authorized program and was drafted as a solution for communities, but it is not considered a catch shares program.

The Alaska halibut/sablefish fishery was a derby before the catch shares program was implemented. Since then the season has lengthened from days to months and the fleet has consolidated substantially, yet the restrictions on transferability maintained the structure of the industry (transfers were only allowed between vessels of the same type).

Most elements in a catch shares program can be designed according to the goals and objectives for each specific fishery including transferability, allocation formula, cost recovery, accumulation limits, resource rents, and excessive shares.

Joe Childers:

In Alaska, there are two major geographic areas, the Gulf of Alaska and the BSAI. In the Gulf of Alaska, there are fewer fishermen with smaller vessels (usually less than 60 feet) whereas in the BSAI, there are large production fisheries (two million metric tons), larger vessels, and substantially more monitoring programs in place.

Initially, the halibut/sablefish fishery was a derby fishery that only lasted for hours. Fishermen had difficulties staying under the catch limit, because they were setting so much gear. The IFQ program was implemented in 1995 with six or seven different designations for halibut areas across Alaska. The quota itself was originally allocated by share types (A-D) – "A" shares were freezer boats, "B" shares were vessels larger than 60 feet, "C" shares were vessels between 35-60 feet, and "D" shares were less than 35 feet. B, C, and D class shares were allowed to "fish down," meaning that they could fish their quota on a smaller boat. Different vessels require

different levels of observer coverage – Bering Sea vessels usually have to carry 200% observer coverage (2 observers per boat), catcher vessels over 125 feet are required to have 100% observer coverage (1 observer per boat), vessels between 60 and 125 feet require 20% observer coverage, and vessels less than 60 feet are not required to carry observers. As a result, much of the quota has migrated down to small boats, because there is less observer coverage. To remedy this problem, E class quota was established which cannot be “fished down.” Additionally, there are ownership and user-ship caps in most of the catch shares fisheries in Alaska. The shift to quota on smaller vessels has also led to efforts to increase observer coverage on these vessels.

Given concerns about communities, managers created "Sitka" blocks that cannot be subdivided or aggregated. Any IFQ allocation less than 20,000 lbs became a block, and individuals could only have 2 blocks of quota – one blocked and one unblocked. Recently, there has been an effort to sweep up those small quota pieces which allows the consolidation of up to 2,500 lbs and the holding of three blocks (two blocked and one un-blocked).

Lessons Learned:

Throughout the discussion, a number of lessons learned emerged from the catch shares program case studies that were discussed. It was suggested that managers use a holistic approach to management when transitioning to a catch shares program. Specifically, the discussion led to the identification of several factors that should be considered in the design and development of future catch shares programs, including the level and type of monitoring that is necessary, how quota would be allocated, how fishermen could enter the fishery, whether quota would be transferable, whether consolidation would be permitted or limited, and how fishing communities can be preserved. Specific questions relating to these considerations were highlighted:

- **Monitoring** – What level of coverage is necessary to accommodate all of the needs to the program and to drive the incentives both at-sea and dockside? How was the system paid for by industry, government or a combination?
- **Quota** – How do you determine the value of quota? Is there and/or how can you create a transparent pricing system? How do to facilitate or allow for collateralization of quota?
- **New entrants** – How do you provide opportunities for new entrants to get into the fishery – i.e. auctions, lotteries, leasing which leads to buying in?
- **Transferability** – What conditions and/or limits should developed, and what are their impacts?
- **Consolidation** – What are impacts? Are their tools to minimize consolidation?
- **Community consistency** – How do you maintain fishing communities? How do catch shares programs affect crew earnings? Can you grant or provide for crew to acquire quota shares?

A catch shares program should also be designed based on the desired goals and outcomes of a specific fishery. The elements of a catch shares program should align with the management goals and allow the fishery to achieve those goals. Finally, catch shares programs should be considered for multi-species fisheries. These fisheries are complex, and often have discard issues that would benefit from catch shares management.

Fishing Communities & Catch Shares

Panelists:

- Ed Backus, Ecotrust, North Pacific Fisheries Trust
- Wes Erikson, Fisherman, British Columbia
- Steve Minor, North Pacific Crab Association, Alaska

The Fishing Communities and Catch Shares panel focused on the design elements and decisions to support fishing communities. A common concern about the use of catch shares as a management tool is the affect on fishing communities. The panel included a fisherman from British Columbia, Canada; a fishing community advocate from Alaska; and the creator of a fisheries trust in the North Pacific. Together, they offered a variety of perspectives on existing catch shares programs. Collectively, the panel stressed the importance of selecting design elements in order to produce catch shares programs that support and enhance fishing communities.

Ed Backus and Wes Erikson:

In British Columbia, the fishing industry initially resisted catch shares; however, a government mandate for change ultimately led to industry supporting a new framework for the fishery. The main motivators for change included safety at sea and low dockside price. The derby style fisheries resulted in the loss of life and injury on vessels. People fished in bad weather and unsafe conditions. The season lasted only a couple of days, and fishermen focused on quantity of fish, not quality. The glut of fish on the market led to low dockside prices. In addition, catch reporting was often inaccurate, and the landings and quota rarely matched.

A variety of management options were considered; however, they decided to explore the idea of individual quotas. Industry expressed concerns with the approach, including high grading, job loss, and impacts on fishing community. Industry also disagreed on allocation formulas. Panelists noted that there is no one-size fits all allocation formula. Instead, it is critical to design allocation formulas to best fit a fishery. In British Columbia, decision makers felt they arrived at the right formula when no one was happy, but most of the stakeholders involved were satisfied with the outcome.

Ultimately, the British Columbia halibut fishery adopted individual quota (IQ) management system, and many of the initial fears were not realized. Ownership caps prevented major consolidation that had been seen in the sablefish fishery. However, discards, particularly of rockfish, in the halibut fishery were a problem that was not solved initially with the IQ program. To address high discards, DFO established an integrated groundfish management plan for all sectors and required full accountability for all catch, including discards. A consensus-based process was used to identify monitoring standards, to establish appropriate monitoring levels and systems, and to fund the monitoring program.

To address discards and accountability, the system allows quota trading to ensure that all catch, whether kept or discarded, is counted. Individual fishermen accountability also exists. Fishermen fill out logbooks and are required to have a camera on their boat to record catch, which are subject to random audits (10%). If audits of video do not match catch in the logbook, a full audit of the video is conducted at the expense of fishermen.

Steve Minor:

A number of fisheries in Alaska utilize catch shares management as discussed in other breakout sessions. The implementation of the halibut/sablefish IQ program resulted in the relocation of quota from many fishing communities. As fishermen sold their quotas due to too little allocation, the quota moved from rural Alaska to urban communities or out of the state. Processing plants closed in many of these communities as fewer landings came into rural ports, which created a domino effect on smaller fisheries in these areas. As a result, when Congress created the Western Alaska community development quota (CDQ) program for groundfish, they set aside allocations for local communities. The CDQ program benefitted rural communities that did not have the money or expertise to buy into the fishery. This program started with a seven percent allocation of pollock off the top of the TAC and has since risen to ten percent of several fisheries.

A catch shares program is also utilized in several crab fisheries in Alaska. In 1999, the Bering Sea snow crab fishery collapsed, leaving 265 boats in crisis. One community, St. Paul, was 85 percent dependent on the snow crab fishery. Without snow crab coming in to the processing plant, the plant was forced to close, which also eliminated processing capacity for halibut. While the crab fishery paid the overhead, the halibut fishery supported the families by employing 25 percent of them. The crisis prompted the fishery to move towards a catch shares program, which had been previously considered but not implemented.

Lessons Learned:

The panel concluded that there are important lessons that can be learned from community impacts in other fisheries. All agreed that leasing is a tough issue with no silver bullet. Leasing is necessary in catch shares programs to provide flexibility. If a fisherman's catch exceeds the quota held, they can purchase quota to cover the difference. Leasing also provides a mechanism to participate in the fishery when the cost of purchasing quota is high. At the same time, high leasing prices and "arm chair" fishermen can be problematic. When the lease rates of quota are high, the profit margins for people fishing the quota can be very small.

Allocation decisions at the outset of a catch shares program can include considerations such as how new entrants will be able to enter a fishery and ways community access to a fishery can be preserved. If preserving fishing communities is a goal, experience shows that an initial allocation is an effective method. Once the initial allocation passes, the cost of purchasing quota for a community can be very expensive. In some fisheries, fleet consolidation is necessary to address highly overcapitalized fleets or where safety issues exist. As seen in the Alaska halibut/sablefish fishery, a domino effect on communities can occur if allocation decisions do not consider impacts on communities.

There is no one size fits all approach to catch shares management. The characteristics of a fishery must be considered. Additionally, the legitimate stakeholders must be defined, and the impacts of management decisions must be considered.

Data Collection & Monitoring Programs

Panelists:

- Jessica Gharrett, NMFS, Alaska
- Howard McElderry, Archipelago Marine Research, British Columbia

Data collection and monitoring systems are integral to the successful management of most fisheries and in particular catch shares management regimes. The Data Collection and Monitoring Programs panel included panelists representing different two different management contexts and perspectives. Howard McElderry explained how the private sector can facilitate and play a role in data collection and monitoring of government managed fisheries. Using the British Columbia groundfish fishery, McElderry illustrated the value of utilizing an objective third-party to provide data collection, reporting, and analytical services. Meanwhile, Jessica Gharrett provided an overview of the government administered catch accounting and monitoring program in Alaska. In addition to highlighting the importance multi-jurisdictional partnerships and industry cooperation, Gharrett described some of the technological advancements that enable greater information sharing and enforcement capabilities.

Howard Elderry:

The British Columbia (BC) groundfish fishery monitoring system was phased in over time and evolved with the BC catch shares program. The BC catch shares program merged five different fisheries into one integrated fishery. Notably, the BC catch monitoring system is administered by Archipelago, a private company. Founded thirty years ago, Archipelago specializes in data collection and monitoring with the goal of creating clean datasets for use by fishery managers. The BC fishing industry has been actively engaged in the development, implementation, and funding of the monitoring system. The current monitoring system includes full catch accounting with 100% observer coverage. Consequently, BC fishermen are motivated to fish more selectively and reduce bycatch because every fish is counted.

Canada's Department of Fisheries and Oceans (DFO) set several key principles to guide the development and implementation of monitoring systems. Specifically, any monitoring system must include discards in its catch accounting, employ a stock specific management approach, and ensure individual accountability of fishery participants. In addition, DFO established specific monitoring standards requiring data collection and integration from a variety of sources including self-reported data, dockside monitoring, and at-sea monitoring. Self-reported data (i.e. logbooks and sales slips) and 100% dockside monitoring with independent validators were accounting tools implemented early in the process. At-sea monitoring was initially limited to trawl vessels with onboard observers, but it was expanded to other parts of the fleet with the introduction of electronic monitoring with cameras.

Electronic monitoring technology enables small vessels, which do not have the space for an onboard observer, to have observation capability. It also allows for audit-based monitoring where cameras are used to crosscheck logbooks against key data points and generate performance scores. Scores are integrated into a matrix that helps fishery managers to identify poor performers as well as highliners and appropriately reward and/or penalize participants.

The BC catch accounting and monitoring system enables full fishery accounting, individual accountability, and management on a stock-specific basis; it also motivates fishermen to fish more selectively, reduce bycatch, and report accurately. Other outcomes of the BC system include a more level playing field for fishery participants, a data rich and credible fishery information system, a more profitable fishery, and safety at sea.

The success of the BC system is the product of several factors including industry involvement and leadership. This co-management approach requires that industry take ownership of the problem and invest in solutions by assisting with program design, implementation, and funding. In BC, industry supports the monitoring program because they helped to design the system. Similarly, data collection by a private entity has created greater acceptance of data by fishery managers. In addition to industry engagement, a refereed process with a privatized monitoring service has generated a credible program, which provides trusted data and allows for the fair imposition of administrative and legal penalties when necessary.

A strong catch accounting and monitoring system can enable and facilitate transition to a catch shares management regime, but lack of a strong monitoring system should not preclude development of a catch shares program. Catch shares programs can help align industry and management objectives by necessitating the implementation of robust monitoring systems. Ultimately, the product is greater than the sum of its parts.

Jessica Gharrett:

Alaska is unique given the diversity and geographic distribution of both managed species and fishery constituents. Consequently, data collection and monitoring systems need to be sensitive to these uncommon demographics. Fisheries management in Alaska is also distinct in terms of the tools and methods employed to manage fishery resources. In addition to permits, fishery managers utilize TACs and quotas, and require full accounting and the use of the best available science. Alaska fisheries are characterized by multi-jurisdictional partnerships between the state, the federal government, and international management bodies.

Alaska started to move its fisheries towards a catch shares management regime in the early 1990s when a CDQ was established for pollock. Subsequently, an ITQ program was introduced for halibut and sablefish, and processor quotas (PQs) were introduced for crab. The objectives in moving to catch shares program was primarily to address open access problems, provide economic and operational stability, and protect revenue and jobs.

The catch shares management and monitoring regime has provided fishery participants with longer seasons, cooperatives, electronic reporting resources, secure data access, and annual adjustments. Managers have benefitted with the development of enhanced catch accounting and enforcement tools including hail-in reports, real-time account debits, and printed signed receipts. In the future, the management system will allow for online and post-landing transfers.

While still evolving, the reporting system has become increasingly electronic. Currently, fishery managers utilize multi-agency “e-landings” system, which includes a web-based reporting platform with an agency interface. Still, there is room for improvement, and Alaska is striving to

improve the customer support side of the “e-landings” system to make it more efficient and user-friendly.

Despite the relative success of the Alaska system, significant challenges remain. Enhancing the e-reporting infrastructure and increasing IT support and customer services are priorities. There is also a need for greater observer coverage and enforcement capacity. There are currently no restrictions on where vessels may land so enforcement is difficult as is obtaining accurate estimates of fishing effort. Vessels are not required to hail out; therefore, it is rarely clear how many boats are out on the water. This is particularly challenging where closures are dependent on catch and effort.

Ultimately, the system, which relies more heavily on the carrot than the stick approach, provides value to fishery participants and fishery managers.

Lessons Learned:

The presentations and subsequent discussions yielded several key lessons learned. Specifically, the development of any data collection and monitoring system must be designed to inspire confidence, facilitate compliance and collaboration, support achievement of conservation goals, minimize and equitably distribute costs, and ensure sufficient observer coverage. Towards those ends, the discussion highlighted several questions which managers should consider when designing data collection and monitoring regimes:

- **Confidence:** How do you design monitoring programs to increase transparency, reduce uncertainty, and generate greater confidence? How do you maintain the integrity and effectiveness of observer programs?
- **Compliance:** How do you design a data collection and catch monitoring system to ensure compliance and minimize data inaccuracies and inconsistencies and reduce misreporting?
- **Collaboration:** How can a data collection and monitoring program inspire/create a more collaborative working relationship and trust between NMFS and industry?
- **Conservation:** How do you address monitoring needs and costs in the context of overfished species and rebuilding plans to ensure that conservation objectives are met?
- **Cost:** How should a monitoring system be funded and who should bear the costs (cost recovery from industry, government subsidies, co-funding, etc.)?
- **Coverage:** What is the appropriate level of observer coverage and what are the trade-offs/risks associated with lower levels of coverage? What is the role of observers (enforcement, data collection, etc.)?

A number of lessons were learned from the presentations and discussions. First of all, it is important to establish clearly defined goals as the first step in designing an appropriate and effective monitoring and data collection system. Good data can serve social as well as biological goals and objectives. An effective monitoring program considers the use of real-time reporting and data collection. Data collection and catch monitoring systems take time to develop and implement. When implementing a quota system or catch shares program, change is inevitable, and fishery managers and related monitoring programs must be able to evolve as needed.

To garner support of stakeholders, it is important to strive for collaboration at all levels during the development and implementation of these programs. Industry needs to take ownership of the problems in their fishery and be engaged in the development of solutions.

Keynote Address

Monica Medina, Senior Advisor to the NOAA Administrator, began by expressing NOAA's commitment to working with partners and communities to maintain America's fishing heritage. She also stated that the Catch Share Task Force policy has been reviewed by Dr. Lubchenco and is awaiting review by Secretary of Commerce Locke. Once the policy is issued, there will be a 120 day comment period. Medina stated that there was careful and conscious consideration of catch shares after a decade of tightened input controls that were not yielding substantial outcomes. She also noted that there are not going to be numerical targets for catch shares, rather that they should be instituted where appropriate. Medina stated that catch shares reduce the race for fish, making fishing safer; increase the value of fisheries; and improve food security. She also explained that science is supporting the use and viability of catch shares programs. NOAA is not mandating the use of catch shares programs, yet there is tremendous design flexibility for catch shares to address many of the issues or challenges that fisheries are facing. Medina explained that Washington is watching the transition of the New England fishery to a catch shares program and that the Administration is committed to ensuring its success. She ended her presentation by asking for any comments that participants wanted her to bring back to Washington.

Participants responded to Medina by expressing a need to develop stronger partnerships between NOAA, NMFS, fishermen, and NEFMC. An expression of fear and current suffering were related to the transition to sectors and about the current state of fisheries. There were questions about the Administration's interest in offering a buy-back program to spur on sectors, funding to support the development and implementation of sectors, and developing ways to protect fishing communities.

Medina responded by stating that the Administration will support what the NEFMC supports regarding a potential buy-back program but that she cannot comment much on the fiscal budgets for 2010 or 2011 as they are still being reviewed by the Administration and members of Congress. She did, however, say that the protection of fishing communities was a prominent reason behind the development of the catch shares policy. She also noted that fisheries are a public resource. Medina closed by restating the Administration's commitment to working with all parties to ensuring the continuation and growth of our nation's fisheries and fishing communities.

General Discussion

The workshop concluded with closing remarks from the NEFMC leadership and an opportunity for discussion from council members and then from the public. Rip Cunningham concluded that unique circumstances required unique solutions. He expressed that there may be no clear way forward but that the NEFMC should proceed regardless. He noted that there needs to be a way to encourage and measure industry buy-in and that the NEFMC should consider an omnibus catch shares amendment to integrate catch shares into other fishery management plans after the Council defines the issues and problems and sets clear goals for the fisheries.

John Pappalardo noted that he saw the workshop as an opportunity to take Council members out of their normal environment to talk about and discuss challenging issues facing the NEFMC. He said that his expectations were met and that he would like to use this format to talk about other issues as well. He said he came to the workshop thinking about catch shares but left also thinking about ways monitoring of fisheries could be improved. Since cost is an issue with monitoring systems, he inquired if costs will dictate the type and extent of monitoring systems that are implemented. Pappalardo highlighted several key concepts that emerged from the workshop, including:

- Maximizing input from stakeholders
- Moving slowly and methodically
- Developing a transitional period
- Defining what you hope to get out of the program
- Designing a process that integrates steps to involve and garner support from stakeholders

The Council members and public were then given an opportunity to ask questions and discuss the workshop. One participant noted that clearly identifying values and translating those values into socially desirable outcomes are needed first steps. He felt that currently, there is an inadequate understanding of the socio-economic impacts of the available options. Another individual agreed with Pappalardo that monitoring is crucial. It is also important to establish goals and metrics to evaluate progress towards goals.

Participants noted that they wanted to ensure they are hearing a balanced perspective from those who benefit and those that do not in a catch shares regime. Catch shares are just one tool in the toolbox of available management strategies. Catch shares can help with many aspects of a fishery beyond the health of the resource. Some felt the marketplace is a better place to resolve issues rather than the courts, which have been relied on heavily in the past. As with any management framework, there are some individual who will benefit and some who will not under a catch shares program; however, status quo is not working and cannot be maintained. There are tradeoffs of management programs, yet there is a need to maintain the long term benefits to those who can participate and survive in a fishery.

The workshop concluded with the Council agreeing to continue these discussions. The information from the workshop will be used as catch shares programs are considered and developed for New England fisheries.