

SECTOR ALLOCATION AS A MANAGEMENT TOOL

Proceedings of the Workshop
Held January 15-16, 2008
Narragansett, Rhode Island



LUANN
WAKEFIELD
RI

F.V.
NORMA
JEAN



Additional copies of this publication are available from the Rhode Island Sea Grant Communications Office, University of Rhode Island Bay Campus, Narragansett, RI 02882-1197. Order P1814.

Loan copies of this publication are available from the National Sea Grant Library, Pell Library Building, University of Rhode Island Bay Campus, Narragansett, RI 02882-1197. Order RIU-W-08-001.

This publication is sponsored by Rhode Island Sea Grant under NOAA Grant Nos. NA40AR4170062 and NA08OAR4170691, as well as by Sea Grant programs in Connecticut, Maine, New Hampshire, New York, and at the Massachusetts Institute of Technology; NOAA Fisheries (the Northeast Fisheries Science Center and the Regional Office); the New England Fishery Management Council; the Marine Affairs Institute at Roger Williams University; the Bradley Fund for the Environment of the Sand County Foundation; Environmental Defense; and the Surdna Foundation. The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its sub-agencies. The U.S. Government is authorized to produce and distribute reprints for governmental purposes notwithstanding any copyright notation that may appear hereon.

This document should be referenced as:

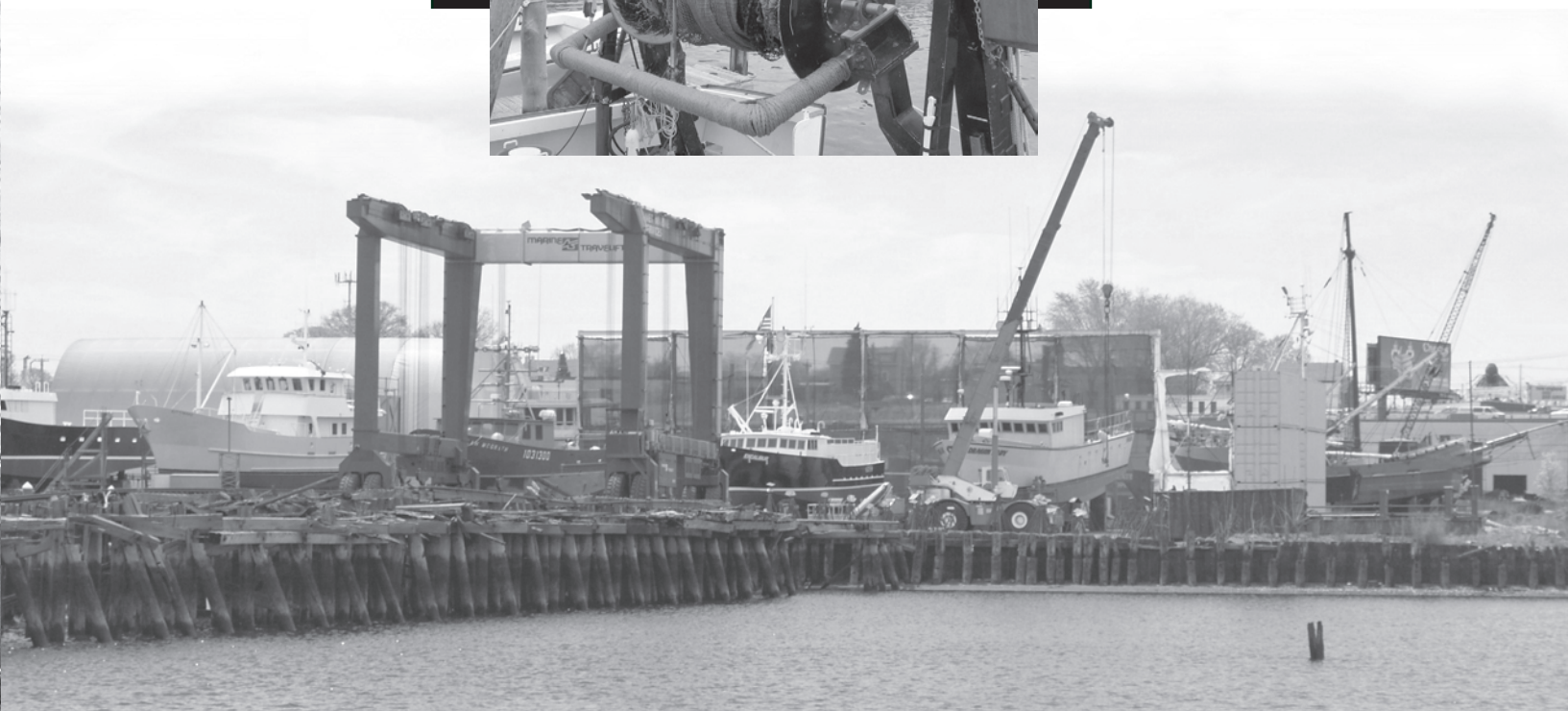
Petruny-Parker, Margaret. 2008. *Sector Allocation as a Management Tool: Proceedings of the Workshop Held January 15-16, 2008, Narragansett, Rhode Island*. Rhode Island Sea Grant, Narragansett, R.I. 76pp.

Designer: Wendy Andrews-Bolster, Puffin Enterprises



Those engaged in the process of fisheries management in the New England region, as elsewhere, face stiff challenges in terms of rebuilding declining fish stocks and reducing bycatch, along with business inefficiencies, safety risks, and competing in an increasingly global market. There is the added challenge of building a sustainable, viable fishing industry that offers an attractive career option for young fishermen with a reasonable means of access.

While sector allocation may provide a more flexible way to manage fisheries and meet some of these challenges, the bottom line with which most workshop participants seemed to agree is that sector allocation is not a “silver bullet” or cure-all but simply one more tool in the management toolbox that should be carefully examined. Moving forward with this tool will require careful consideration of issues surrounding allocation, enforcement, monitoring, issuance of penalties, multi-species applications, the adequacy of the initial database, and the capacity among fishermen to organize and administer sectors.



Sector Allocation as a Management Tool

**Proceedings of the Workshop Held
January 15-16, 2008
Narragansett, Rhode Island**





Table of Contents

Introduction.....	5
Margaret Petruny-Parker, Rhode Island Sea Grant Program	
A. Why Consider Alternative Management Approaches Such as Sector Allocation?	6
Overview of Existing Problems with Current Management Approach	
<i>Christopher Brown, President, Rhode Island Commercial Fishermen’s Association</i>	
B. General Information	11
Magnuson-Stevens Reauthorization Act, Limited Access Privilege Programs, and Sector Allocations	
<i>Mark Holliday, Supervisory Policy Analyst, National Marine Fisheries Service</i>	
Comparison of Sector Allocations with (Other?) Limited Access Privilege Programs	
<i>Andrew Kitts, NOAA Fisheries Economist, Northeast Fisheries Science Center</i>	
C. Review of Implementation Status of Sectors	18
Summary of New England Fishery Management Council’s Actions on Sectors	
<i>Christopher Kellogg, Deputy Executive Director, New England Fishery Management Council</i>	
Mid-Atlantic Fishery Management Council: Sectors Update	
<i>Jason Didden, Assistant Fishery Plan Coordinator, Mid-Atlantic Fishery Management Council</i>	
D. Case Studies	22
Georges Bank Cod Hook Sector and Georges Bank Cod Fixed Gear Sector	
<i>Eric Brazer, Fisheries Policy and Management Coordinator, Cape Cod Commercial Hook Fishermen’s Association</i>	
<i>Jan Margeson, Commercial Fisherman, Chatham, Mass.</i>	
Shetland Fish Producers Organisation	
<i>Brian Isbister, Chief Executive, Shetland Fish Producers Organisation</i>	
E. Sector Allocation: Implementation Considerations	37
Sector Allocation as a Management Tool: Legal Considerations	
<i>Elizabeth Butler, Partner, Pierce Atwood LLP, Portland, Maine</i>	
Sector Allocation as a Management Tool: Enforcement Considerations	
<i>Christopher McCarron, Criminal Investigator, Northeast Enforcement Division, National Marine Fisheries Service</i>	
<i>Lt. Anthony Kenne, U.S. Coast Guard</i>	
Integrating Recreational Fisheries into Sector Allocation and Limited Access Privilege Programs	
<i>Robert Johnston, Associate Professor, University of Connecticut Department of Agricultural and Resource Economics and Associate Director, Connecticut Sea Grant College Program</i>	
Management Considerations	
<i>David Preble, Member, New England Fisheries Management Council</i>	
Small Group Discussion Session—Sector Option	
Summary of Discussion	

F. Broadening the Scope—Assessing the Potential for Rights-Based Management in U.S. Fisheries	58
Sustaining America’s Fisheries and Fishing Communities—An Evaluation of Incentive-Based Management <i>Kate Bonzon, Fisheries Specialist, Environmental Defense</i>	
Panel Session: Pros and Cons of Rights-Based Management <i>Panel: Joel Hovanesian, Commercial Fisherman; Ted Platz, Commercial Fisherman; Richard Allen, Fisheries Consultant</i>	
G. Next Steps	71
Summary of Discussion	
H. Summary.....	72
Participants.....	75



Introduction

Since the United States laid claim to the fishery resources out to 200 miles off its coasts some 30 years ago, the story of fisheries management is one filled with struggles and controversy, ever-changing regulations, and, at times, failures, both in terms of protecting the resource and providing economic stability for the harvesters. In New England, as elsewhere, the challenge has centered on finding the right approach to management—one that achieves the appropriate balance between fishing pressure and resource availability while also meeting economic, social, and environmental goals.

With the reauthorization of the Magnuson-Stevens Fishery Conservation Management Act in 2006, the nation renewed its commitment to managing for sustainable fisheries, and with that renewed commitment came an expansion of management options for regional fisheries management councils to utilize. The authorization of Limited Access Privilege Programs (LAPPs), programs that involve the issuance of federal permits to harvest a quantity of fish that is a portion of the total allowable catch (TAC) of a fishery, opened the door to consideration of a suite of rights-based management approaches.

In the New England region, discussions have focused on the concept of sector allocation, an allocation of a portion of the TAC to a group of fishermen to fish according to an approved plan they develop. Two such sectors, the Georges Bank Cod Hook Sector and the Georges Bank Cod Fixed Gear Sector, have been in operation on Cape Cod for a few years, and the New England Fishery Management Council is currently considering some 17 other sector proposals.

Accompanying this focus on sectors has been a genuine interest on the part of fishermen, managers, environmentalists, and others in the region to learn more about this management option and consider whether it is a possible solution to some of the problems currently associated with quota-managed fisheries. This interest in sector allocation management has raised a series of questions, including the following:

- Are sectors, as they are being defined and used in New England, considered LAPPs?
- What are the similarities and differences between sectors and different types of LAPPs?
- What are the policy guidelines of the New England and Mid-Atlantic Fishery Management Councils regarding the establishment of sectors?
- What can we learn from the sector case studies that have been under way?
- In forming a sector, what are the legal, enforcement, and allocation issues that need to be considered?
- Is the concept of sector allocation applicable to the recreational fishing community?
- What are the general pros and cons of a sector management approach?

The Rhode Island Sea Grant Program, in partnership with the Sea Grant programs in Maine, Massachusetts, Connecticut, New Hampshire, and New York, the New England Fisheries Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, the Roger Williams University Marine Affairs Institute, the Bradley Fund for the Environment of the Sand County Foundation, Environmental Defense, and the Surdna Foundation sponsored an educational workshop in Narragansett, R.I., on January 15-16, 2008, to address some of these questions and to provide an opportunity for discussion. The workshop encompassed a variety of individual and panel presentations, along with small group discussions, and drew a wide range of participants including members of the fishing community, state and federal agency personnel, council members and staff, and representatives of environmental organizations and academic institutions.

The following document summarizes the information that was shared during this two-day workshop, organizing the information in accordance with the workshop's major sessions. Also included are summaries of the questions, answers, and comments that accompanied each session. At the end is a general summary of the key concepts and themes that emerged over the course of the two days.



A. Why Consider Alternative Management Approaches Such as Sector Allocation?

From a commercial fisherman's perspective, Chris Brown presented an overview of the existing problems associated with the current management system, particularly for quota managed species, and his views on why alternative management approaches such as sector allocation should be considered.

Overview of Existing Problems with Current Management Approach *Christopher Brown, President, Rhode Island Commercial Fishermen's Association*

Where we are, how we got there, and where we are going:

Part of what I learned at a transitional leadership workshop I attended was the need to be able to explain where we are, how we got here, and where we are going. In terms of where we are, we are currently in a train wreck. I consider myself a pretty good fisherman but I am in a train wreck—we all are. To effectively facilitate meaningful change in the manner we manage fisheries in the future, we need to determine specific unfavorable human responses to regulations in the past, consider their source, and avoid them in the future.

We have gotten to where we are through strict adherence to management strategies that are inherently flawed. We have been playing with these things for 15 years now and have not achieved the intended results in half of them. These management strategies are inherently flawed.

In terms of where we are going, I would respond, “to the morgue.” We need to break away from what we are doing because we are going to fail. A newly reauthorized Magnuson-Stevens Act will close us down.

Overview of current situation:

We have stocks that have failed to recover in a reasonable period of time or in some cases they may have recovered and we really do not know because their recovery is going undetected. For example, in the fluke fishery I would defy anyone to tell me that fluke are overfished. But the way that we have filled out our vessel trip reports and how that has affected the growth of the stock on paper is a tragedy. Scup is the same thing.

There is no trust or faith in the federal management process. Faith is born from success but we have not experienced a lot of success. As a result, we have no faith in the people who are leading our lives at the regulatory level. There is a collective feeling of doom in the industry that is well known and documented.

Also financial hardships threaten the entire fishing community. They threaten the infrastructure by threatening the companies that support us.

Out of the rubble of a management strategy that has inherent flaws in it has emerged a culture of disregard that is largely discard-tolerant. This is not just limited to those who fish. Regulators at very high levels have become complacent and tolerant of waste.

Industry is being held responsible for the inefficiencies of a flawed plan through the lowering of TACs. That has happened for two years in a row for the fluke fishery. Retrospective analysis comes through and shows we are fishing at too high a mortality rate and they lower the TAC. The stock assessment is wrong; the TAC should be higher, and the discards should be less. It should be a win/win situation but it is not working out that way.

The cost of implementing these programs has been exorbitant to the taxpayer. Right now the National Marine Fisheries Service (NMFS) does not have enough money to do anything positive for us because we have been putting out fires. We have not done anything positive in a long time.

These outcomes were not supposed to happen but they did. The specific strategies that have resulted in these problems are the result of quota management and the current Days at Sea system. Over 15 years, both of these efforts have demonstrated they will not work, and they did not come with a guarantee that they would work. Their efficiency has never been revisited, and this is maddening to me as a fisherman.

When mortality comes back too high, we have to lower landings, but it was not landings that caused the problem. It was an inefficient management strategy that forced guys to do things such as high grading and discarding that are not in their best interest. When a guy is put in the position of trying to survive the day, he cannot be blamed for trying to survive.

Problems with existing management strategies:

We have run over the time for a scientific experiment of these management strategies. We have tried them through two different management councils, using closed areas and different mesh sizes to supplement the strategies, and neither council has been successful. They have failed and will continue to do so.

Quota management is simple mathematical reasoning that is applied to the random and chaotic manner of fishing. The problems with it include that it:

- Simply expresses pounds over the course of time in response to previous harvest patterns (10 to 20 years in the rear) that have nothing to do with what we are doing today;
- Ignores current trends in population and distribution;
- Allows one to manage without regard for discard mortality;
- Manages without consideration of gear type. [In a given day, quota management manages a retired school teacher fishing on a skiff in the same way as a 1,000-horsepower trawler fishing 250 miles away.];
- Manages directed fisheries and bycatch fisheries identically;
- Creates seasonal opportunities that translate into a race to fish regardless of price or profit;
- Does not allow businesses to maximize their return. [Fishermen fish until the quota is gone—or high grade the low ones. We call it the “salesman fish box derby”.];
- Is incapable of responding to different patterns of migration from year to year. [Regulators may apply a quota to the month of May but if fish migrate in April or June, it does not work. We will have high mortality.];
- Often relies on select years for allocation that include when fish were in an overfished state; and
- Does not place a value on live fish. It deals with counting the dead ones.

Many times we look at the pile of fish caught and brought up on deck and look at each other and say this is just stupid. Why can't we just bring them in and stay in the next day? For example, this September and October I participated in a squid fishery. The fallout of that squid fishery was a tremendous amount of dead juvenile scup. I did not have a choice. The scup and fluke fishery were closed. I did not have the opportunity to prosecute the fishery as we normally would.

The Days at Sea approach is fundamentally flawed. Daily profits are generated from the stronger stocks, but fishermen encounter the stocks that need the most protection. These are also the stocks that yield the least amount of profit. There is the tendency to “fish through them.” The system is destined to fail.

Within the Days at Sea system, the needs for profitability and conservation are mutually exclusive. Conservation will send fishermen acting one way and pursuit of profitability will send them in another. Any management strategy that does that to a fisherman on a given day is going to fail. It is going to produce a list of consequences that will run afoul of the management plan and ultimately the Magnuson-Stevens Act.

How it plays out is like this. The Days at Sea or quota management strategy is determined to be desirable and is implemented. Goodwill permeates the population of users, and the stock initially responds with the population going up a little bit. The stock expands a little bit more as well as the seasonal availability. In this expansion, seasonal opportunity is extended to the most populous user group. There is a reduction in the TAC in the presence of a higher abundance. Discards go up and fishermen are afraid to report the discards for fear of losing more of their quota. Discarding becomes a part of the culture and it is seen as something that must be done in order to survive. This has an effect biologically on paper because it lowers the perception of abundance. Underestimating lowers the TAC. By then we are near the end of a management plan, and we have two or three years left to double the resource. We have been found to be overfishing at twice the rate in seven years out of 10.

The final retrospective analysis for fluke is just that. I predict the fishery will be closed although we are in the presence of one of the highest biomasses we have seen.

Need for change:

I have a theory that stocks that are managed by discard-tolerant management strategies are incapable of recovering on paper and in reality at same time. I theorize that under the current plan, we will never realize our yield or actively fish on a recovered stock. I don't see how it can happen.

We cannot get to where we must go because of the inherent flaws in the management strategies. An unfavorable human response to these plans is what a guy does. There is a layering of inefficiencies on his business. We have to provide people with an opportunity to make money while they are catching fish.

Have we failed or have we been failed? I think the latter. We gave it our best shot but the deck was stacked against us. We need a new approach. We need to:

- Break the vicious cycle of cuts, discards, and underreporting that leads to more cuts;
- Eliminate wasteful fishing and management practices;
- Allow the commercial fishing industry to reconnect with the commonly recognized business concepts available to everyone else in their businesses. [This means being able to manage their overhead—you don't open up if you don't think you can make any money—and consolidate your effort as best as you can.];
- Rebuild and reaffirm the bond between stock health and community health. [We will not achieve industry health so long as we have stocks that are being wasted.];
- Restore the pride and dignity that was once part of being a commercial fisherman. We have damaged the moral and ethical compass of an entire generation of young fishermen with little or nothing to show for it.

In short, it is time for a change.



Questions and Comments

- Q: Your problems are somewhat regional—is that correct? Your problems stem somewhat from state allocations. Will a sector in which you guys are allowed full retention of the many species you are talking about be the answer?

A: I know whatever we propose is a solution to an existing set of problems. Twenty years from now or 10 years from now it may not be appropriate. This is a transitory strategy. We have to break away from what we are doing. It is probably not a final resting place for our thoughts. I would guess it is not but right now unless we get away from what we are all going through, it is not going to be an issue.

- Q: In a hypothetical situation where someone catches a little scup, squid, some black sea bass, some fluke and a couple other fish, is it really a short-term measure? Can it provide the solution that fishermen in Rhode Island are looking for?

A: I believe it can. I think we have the ability as fishermen through our experience of thirty-plus years fishing locally to be able to flavor our effort—such as going out a little deeper to avoid this and target that to make it work out.

- Q: Do you think you can do that within the current percentages that Rhode Island has?

A: Yes, I do. Rhode Island has been blessed with a fairly generous allocation.

- Q: There are high biological targets for rebuilding. I do not think sector allocation is going to solve that. That is a matter of a whole new subject. Whatever changes are made, biological targets still need to be lowered. Sectors will just struggle through what they have been allocated. I do not think sectors are the panacea to everyone's problems. If your biological targets are set too high and your quota allocation is set too low, is a sector going to solve your problem? Are you still going to discard to keep your sector alive? I don't think sectors are going to solve the discard issue.

A: Maybe you can make an enormous improvement in the given situation you have. Maybe you did not do 100 percent but you dry up 85 or 75 percent of the discards. We are discarding more fluke than we are landing as a fleet. I am fishing 200 plus days a year but I am making all my money in about 100 of those days. The rest of the time I am getting out of the house—I am “going to get my fluke.” I fish unprofitably. I am towing a small mesh—who knows what I am killing. I am not very proud of this. Sometimes you just go out and you get your fluke—and whatever else you drag up with it.

We do have the flexibility with sectors to mitigate waste. We do not have that with quota management. We may set a school of scup and have as many discards as savable fish. We are wasting our potential as harvesters locally of fluke by going out and getting the fluke a hundred times. It is stupid and there is no money in it. Let me go out groundfishing and integrate the fluke fishery into the

groundfish fishery on the days I go groundfishing. I will save all my fluke and I will not go back on stupid days. I will stay in.

A sector approach provides flexibility that current plans just cannot duplicate, and sectors empower fishermen to use their skill set. This is stuff that no one else knows such as anecdotal information that they tell us is useless. This is the empowerment of anecdotal information—things that fishermen know and can share. I see a lot of promise but I do not know that this is going to be the ultimate solution. But it can be a transition strategy, and then we can see from there.

- Q: You prefaced your remarks with an expression of a fair amount of anger or grievance with the federal government. What do you think are the areas of collaboration in the future? How do you propose to collaborate with government, and with the public that has a broader interest in fisheries? Is there room for collaboration?

A: I do not have a problem with the Magnuson-Stevens Act or council systems or RIDEM. The strategies they are using are the problem. By accepting a hard TAC within the parameters of sector management, I have already and immediately collaborated with everyone who owns the fish in the United States of America by satisfying the overfishing mandates of the Magnuson-Stevens Act. I have stepped forward and acknowledged that we will not fish beyond this. In that, we are not contributing to overfishing and are in compliance with the law. Being in compliance with what we have to comply with is as good as it gets, as long as we can make a buck doing it.

- Q: Do you foresee with the sectors everyone being able to survive or do you feel there is going to be people who will not be able to survive and if that is the case, how do you propose we deal with the people who are going to fall through the cracks?

A: With any business, there are going to be people who get in who do not make it. That is just common in any and all businesses. The formation of sectors will allow someone an opportunity to hang onto their business and get to a point where the stock is higher and their personal quota is higher and they can fish again. Without the formation of sectors, you do not have that kind of built in security.

I do not want to reduce the size of the fleet one boat if we do not have to. It is not the direction of sectors to shrink the fleet. It allows us to step back and allow the quota to be fished that exists. We do not have that right now. It is in my best interest if no boats go out of business. I am threatened daily by real estate development. I am dependent on the infrastructure. I need the fuel guy, the engine guy, the net guy—I need them all. Just me making it or just five or six guys making it does not do well for all of us. We need both big boats and little boats to be making it. You need to find profitability so a guy can fish the way he intended to fish.

- Q: Going with the science that we have available today, how can we base anything going forward on what we all acknowledge is flawed science? If the science is flawed so badly, how do we set something up?

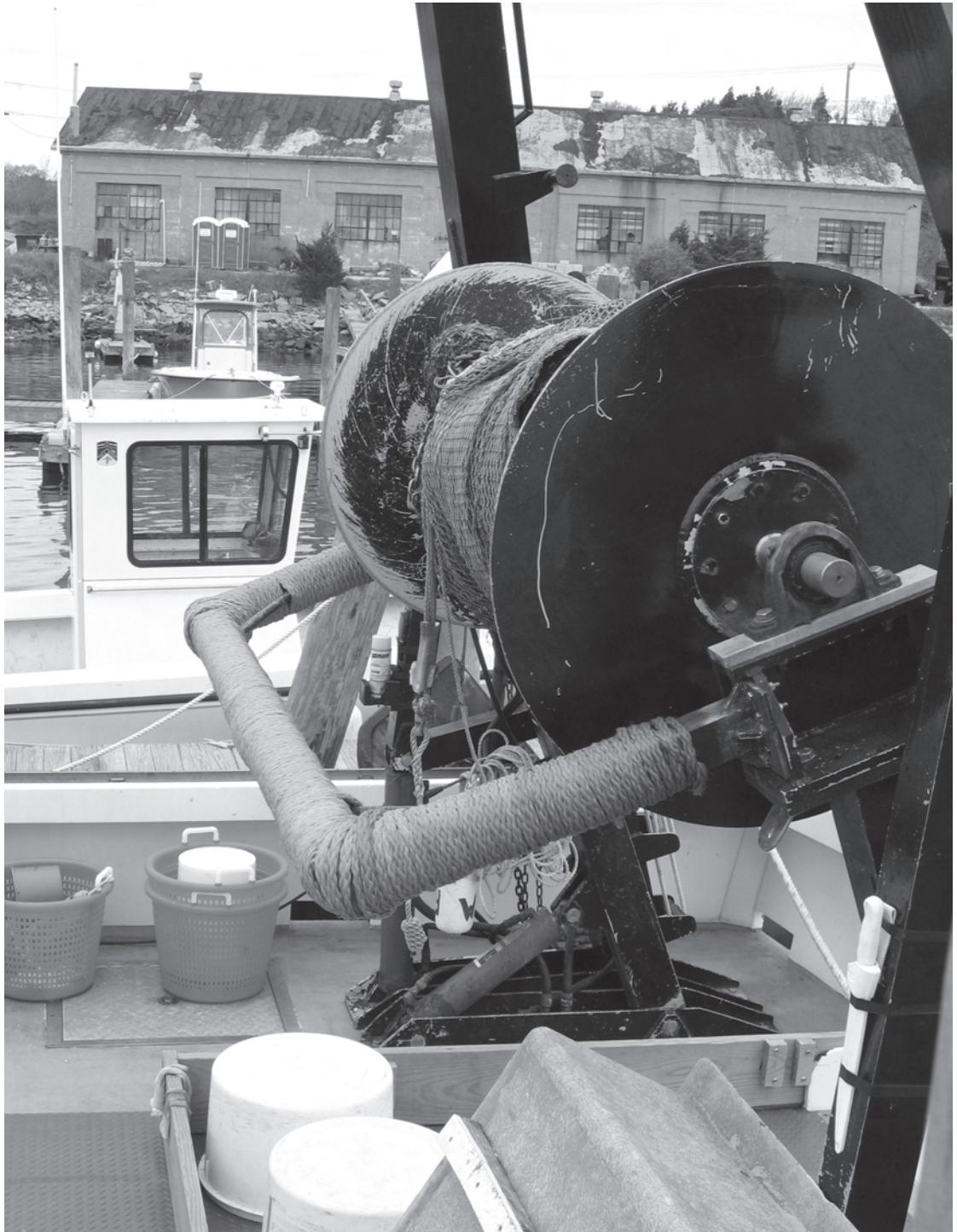
A: I do not know if that is a discussion that relates specifically to sectors. That is a whole day dialogue. How you think we are doing on stock assessments—that sort of stuff. We know there is a lot of fluke and a lot of scup but we need to know how they got to their conclusions. Scientists are doing things wrong, but you have to take that with a grain of salt. We have done things to ourselves. If we do not get away from that, with or without sectors we are going to continue to artificially reduce the presence of fish. We have done that with fluke. If we were allowed to keep the fluke we have dumped over in the last 20 years we would have a 40-million-pound fishery right now.

- Q: If the science is not right the biomass is not right. What is going to change? I do not see how this solves the situation. Sectors are not an in-between fix. I feel it is a no-return point.

A: If we get into a sector and stick to the hard TACs and prove we can get rid of the discards in the fishery by fishing it correctly, wouldn't that prove to the government that we are not throwing dead fish back into the water? Hopefully down the line the part of the stock that they are counting as discards we would be able to recoup for a viable fishery in the future.

Any time you have a revisitation of the stock in the form of a retrospective analysis, it goes back and shows you how many fish are missing from the formula. Is it a flawed science? Yes, but it is not

landings that is screwing the fluke fishery up—it is the discards. Unfortunately, we have not integrated the groundfish fishery and the fluke fishery. Once you get away from having these unfavorable retrospective analyses, the stock starts going upward and your quota should go up. That is the goal. A recovered stock is the greatest provider—not what you can get from your fellow fisherman. If you have not addressed a specific regulatory problem with a sector then it is a fish grab and not a sector. Sectors solve problems.



B. General Information

In this session, representatives from NMFS presented general background information. The first presentation focused on reviewing the statutory requirements pertaining to LAPPS in the Magnuson-Stevens Reauthorization Act of 2006 and clarifying some of the different terminologies in use. The second presentation highlighted the similarities and differences between sectors and different types of LAPPS.

Magnuson-Stevens Reauthorization Act, Limited Access Privilege Programs, And Sector Allocations

Mark Holliday, National Marine Fisheries Service

Context—Essentials of fisheries management:

In fisheries management, there is a wide choice of policy tools, and we need to look at what they really accomplish and some of the problems that arise. We also need to consider the sort of incentives they provide, including incentives to properly steward the resource, economic incentives, and biological controls.

Given the wide choice of policy tools, the right fishery management tool should address causes versus symptoms. It should also be feasible to administer and enforce, and have a high likelihood of success.

There are three general management categories:

- **Open Access**—The activity of participants is controlled but not their numbers.
- **Limited Access**—Access is controlled and improvements result from a smaller number of participants. Private incentives are still not compatible with the aims of management, and there is a bycatch consequence.
- **Limited Access Privileges**—The necessity of controlling participation is recognized. The one traditional control (hard TACs) is used and this can potentially be biologically successful. This approach is structured to make the incentives facing participants to be compatible with the management goals, business goals, and human behavior.

In recent years there has been an emphasis on the policy tool of Limited Access Privileges. The Ocean Action Plan, which came out of the work of the U.S. Commission on Ocean Policy, directed NOAA to develop, in consultation with the regional councils and interested parties, national guidelines for the development and management of Individual Fishing Quota (IFQ) allocations. The current administration seeks to ensure regional Fishery Management Councils have the maximum flexibility and discretion (within legal authority) necessary to implement LAPPS, and Congress gave direction. And U.S. Commerce Secretary Gutierrez pledged to work with Regional Fishery Management Councils to double (to 16) the number of LAPPS by 2010 demonstrating support for this approach at senior levels of the administration.

Clarification of terms:

The following terms are in common usage, with some of them defined in the Magnuson-Stevens Reauthorization Act of 2006 and some defined elsewhere. It should be noted that each word of the definition given is important.

- **Individual Fishing Quota (IFQ)** [16 USC 1802(23)]
 - (23) The term “individual fishing quota” means 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 TAC of a fishery that may be received or held for exclusive use by a person. Such term does not include community development quotas as described in section 305(i).
- **Individual Transferable Quota (ITQ)**
 - Term is not defined/used in Magnuson-Stevens Reauthorization Act; when IFQ privileges can be transferred (determined by Council process) subsequent to initial allocations, then IFQs are commonly referred to as ITQs
- **Dedicated Access Privilege (DAP)**
 - Term is not defined/used in Magnuson-Stevens Reauthorization Act but is in the U.S.

Commission on Ocean Policy Report—a novel form of output control whereby an individual fisherman, community, or other entity is granted the privilege to catch a specific portion of the TAC.

- There are several different types of dedicated access privileges:
 - ⊙ IFQs (ITQs when the assigned portions can be sold or transferred to other fishermen)
 - ⊙ Community quotas grant a specified portion of the allowable catch to a community—for example, the Community Development Quota Program in Alaska.
 - ⊙ Cooperatives split all or part of the available quota among various fishing and processing entities within a fishery via contractual agreements.
 - ⊙ Geographically based programs give an individual or group dedicated access to the fish within a specific area of the ocean.
- The term highlights that it is a granting of a privilege, not a right.
- It is an umbrella term including privileges assigned to individuals as well as groups or communities.
- The dedicated privilege being granted is access to the fish, rather than the fish themselves.
- **Limited Access Privilege Program (LAPP)** [16 USC 1801(26)]
 - (26) The term “limited access privilege”
 - ⊙ (A) means a federal permit, issued as part of a limited access system under section 303A, to harvest a quantity of fish expressed by a unity or units representing a portion of the TAC of the fishery that may be received or held for exclusive use by a person, and
 - ⊙ (B) includes an individual fishing quota, but
 - ⊙ (C) does not include community development quotas as described in section 305(i).
- **Limited Access System** [16 USC 1802(27)]
 - (27) The term “limited access system” means a system that limits participation in a fishery to those satisfying certain eligibility criteria or requirements contained in a fishery management plan or associated regulation.
- **Fishing Community** [16 USC 1802(17)]
 - (17) The term “fishing community” means community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.
- **Regional Fishery Association** [16 USC 1802(14)]
 - (14) The term “regional fishery association” means an association formed for the mutual benefit of members
 - ⊙ (A) to meet social and economic needs in a region or subregion; and
 - ⊙ (B) comprised of persons engaging in the harvest or processing of fishery resources in that specific region or subregion or who otherwise own or operate businesses substantially dependent upon a fishery.
- **Sector Allocation**—The term is not defined in the Magnuson-Stevens Reauthorization Act but it is in common usage.
 - Assignment of some portion of the TAC to a group of two or more individuals holding permits in a fishery that have fulfilled council eligibility and participation criteria, and have agreed to collaborate, voluntarily and for a specified period of time, in order to achieve a common set of objectives.
- **Fishing Cooperative**—The term is not defined in the Magnuson-Stevens Reauthorization Act.
 - Under the Fishermen’s Collective Marketing Act (FCM) of 1934 (15 USC 521) they are comprised of “persons engaged in the fishing industry as fishermen, catching, collecting, or cultivating aquatic products, or as planters of aquatic products on public or private beds, that may act together in association, corporate or otherwise.”

Differences between IFQs, LAPPs, DAPs:

What is the difference between IFQs, LAPPs and DAPs? Conceptually they are talking about the same thing. The common thread is the granting of a privilege for the exclusive use of some share of the allowable harvest, but there are subtle legal distinctions in the Magnuson-Stevens Reauthorization Act. LAPPs include IFQs, regional fishing associations, and fishing communities, as well as any other entities meeting the applicable eligibility and participation requirements specified in the act and those additionally specified by the council.

Are sectors LAPPs?:

One might ask, “How will I know a LAPP when I see one. Are sectors LAPPs? Are fishing cooperatives LAPPs?” The devil is in the details. Rather than try to make a broad generalization or categorically qualify classes of entities (e.g. sectors, cooperatives, etc.) where definitions and understandings may differ, the focus should be on who can acquire or hold a limited access privilege under the Magnuson-Stevens Reauthorization Act. There are criteria to focus on in deciding whether a sector can qualify as a LAPP.

Requirements in the act limit acquisition of LAPPs to a subset of defined “persons” [16 USC 1802(36)] with the term “person” being limited to a U.S. citizen, a corporation, partnership, other entities established under U.S. state law, or permanent resident alien.

The act specifically defines requirements for two entities that are eligible to participate in a LAP program: 1) fishing communities (FC) and 2) regional fishery associations (RFAs). Notably, RFAs are explicitly prohibited from receiving an initial allocation of a LAP, but may acquire such privileges after the initial allocation, and may hold the annual fishing privileges of any LAP it holds or the annual fishing privileges that its members contribute.

Other entities can participate in a LAP program. An entity refers to something other than a natural person that can function legally (e.g. enter into binding contracts, can sue or be sued, and make decisions through agents). A corporation is an entity; while a mere collection of individuals acting in concert is not. The entity must still comport with participation criteria, allocation and transferability requirements.

In summary, for a sector to be considered a LAPP, the sector needs to meet the definition of “person” as a legal entity, receive a portion or percentage of the TAC in the form of a federal permit under a limited access system, and ensure all participants and eligibility requirements of the statute and council are satisfied.

LAPP guidance:

I have been involved working with people within NMFS and the regional councils to develop a report on LAPPs to serve as a source of information to people and to provide an impartial view on the pros and cons. This was finalized in November and went to printing in December.

There is also ongoing work being done to develop formal NMFS guidance on this subject. The agency has been seeking input on the type of questions that the agency should be spending its time answering. The public comment period for this process ended on September 30 2007. Based on some 44 individual comments and 1,621 e-mail comments, Magnuson-Stevens Reauthorization Act (MSRA) issues needing interpretive guidance were identified. Public notice and comment rulemaking is forthcoming (expected sometime this summer or next fall).

Summary:

The following is a list of LAPP truisms:

- There is no one-size-fits all LAP program
- Not all fisheries can/should be managed via LAPPs
- Because people are not told how to catch fish, LAPP incentives exist to organize fishing activities to keep costs as low as possible and to produce the highest valued product
- LAPPs should be designed in the same way as other fishery management plans

LAPPs are one of many tools councils have to design programs that conform to the Magnuson-Stevens Act and accomplish stated management objectives. The challenge is to use the tools that are available to design programs around the goals and needs of industry, and the communities that are dependent on fisheries.



Questions and Comments

- Q: Does a LAPP have to have a conservation goal?

A: Yes. It needs to specify a conservation objective. That is required by statute.

- Q: Does it allow for processors in a shore-side community to obtain a quota? Does it provide the councils with that option, and is it mandated?

A: It certainly is not mandated. It is an opportunity for councils to consider if it is consistent with the goals and objectives of their plan.

- Q: Under the definition of community, can members of the public who are interested in management of the fisheries or conservation of the fisheries participate in these LAPPs? For example, in New Zealand, 5 percent of a fishery was taken to protect that for the public. Should nongovernmental organizations be able to participate in this as a means of protecting these fisheries?

A: There could be a variety of ways the community interest could be protected or considered both in the initial allocation and in the transferability provisions. Those are all choices councils have in front of them. They could limit transferability. They could constrain substantial participation in issuing an LAPP. That could mean limiting it to some “use it or lose it” stipulation over some period of years. You can design these programs to be as flexible or as limiting as you need them to be, but you need to meet the objectives of the council. It is up to having your list of objectives or requirements and then matching them to the design of the tool to achieve them. As far as reserving a portion of the catch off the top as a way of protecting the resource, that is really the purpose of the annual catch limits at the onset.

- Q: Could recreational fishers participate in this?

A: There is nothing prohibiting that in the act. It is back to the council. These are not mandates, these are choices. The council could consider that if it is consistent with their objectives.

- Q: We are actively working on the development of sectors here in New England. The council is working on Groundfish Amendment Number 16, and there are a lot of sectors that are being proposed as part of that amendment process. We are working in the dark. We have not been receiving guidance on things such as what we qualify for and what we do not qualify for. Now we are hearing that NMFS will not be coming out with their guidelines on the national level until we are done with our process. Do you have any recommendations from the national office of NMFS in Washington, D.C., about what we should be doing in the interim?

A: The question is about synchronism of the timing—why don’t we have guidelines. It has been over 12 months since Magnuson-Stevens Act was reauthorized. It is not because we did not want to do it, but because there has been a lack of sufficient resources for councils and the agency to get the guidelines out in a timely manner. The remedy is in finding those resources. It is not as if the agency in Gloucester (the regional office) has any different opinion on quotas than we have in Silver Springs. The agency is in favor of promoting the dialogues involved in the groundfish amendment. It is a resource-constrained issue for us.

Comparison of Sector Allocations with (Other?) Limited Access Privilege Programs

Andrew Kitts, NOAA Fisheries Economist, Northeast Fisheries Science Center

Overview:

The goal of the presentation is to compare sectors with different types of LAPPs including Individual Fishing Quotas (or Individual Transferable Quotas), quotas issued to regional fishing associations, and quotas issued to fishing communities. The question of whether or not sectors fall under the category of LAPPs is not addressed, and the term “community development quota” is explicitly excluded from the term “fishing community.”

The factors that are used for the comparison include the following:

- Allocation (who receives an allocation without addressing how the allocation was made);
- Reallocation (transferability);
- Management responsibility (divisions of responsibility for NMFS and the groups);
- Any provisions for new entrants; and
- Advantages and disadvantages.

The working definition for the term “sector” is the one used in the regulations for groundfish:
Groundfish sector definition [from 50 CFR Part 648.2]:

-Sector, with respect to the New England multispecies fishery, means a group of vessels that have voluntarily signed a contract and agree to certain fishing restrictions, and that have been allocated a portion of the TAC of a species, or an allocation of DAS (Days at Sea)

This definition is evolving, and Amendment 16 will have some changes. It is also a working definition for sectors in other types of fisheries.

Also in the regulations are operational features for groundfish sectors. These include:

- Submittal of a proposal one year in advance. Authorization is through council action and NMFS approval.
- Submittal of an operations plan with a binding contract and an environmental assessment (EA).
- Allocations are based on a share of commercial catch during the five years prior to establishment of the sector.
- Sector allowed to request allocations of only some stocks and limited exemptions for other regulatory controls.
- Sector share is limited to 20 percent of a stock without an express exemption.
- All sector operations terminate once the hard TAC is reached. Overages are deducted the following year.
- Members are jointly and severally liable and subject to civil penalties and permit sanctions.
- Sector members removed from a sector for violation of the sector rules will not be eligible to fish for remainder of the fishing year.

Comparisons:

Allocation

Under an IFQ/ITQ program (treated as one type), allocation is to a “person” with person being defined under the Magnuson-Stevens Act as an individual, corporation, partnership, association, or other entity including government. Section 303A (LAPPs) further restricts this to U.S. citizens, corporations, partnerships, or other entities or permanent resident aliens.

Allocation to a fishing community (FC) refers to an allocation to a community that is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs. This includes fishing vessel owners, operators, and crew, and U.S. fish processors that are based in such a community. It is a place on a map, and the key word is “residents”—people who live in the community who conduct fish-related businesses (commercial and recreational harvesting, processing, and support).

A regional fishery association (RFA) is composed of “persons” engaged in harvesting, processing, or a business substantially dependent upon a fishery. Allocations are based on the eligibility of “participants” who hold quota share (commercial, recreational, processing, support businesses, and fishing communities). A regional fishery association cannot receive an initial allocation but may acquire that from people who do get an initial allocation. [Note: This may be a chicken and egg situation with an ITQ program first that a regional fishery association builds around. This is something to work out.]

Allocation to a sector is based on the sum of individual shares (the process for determining what portion of TAC a sector gets). Individual shares have no official standing after that point unless a vessel leaves or joins a sector. This is the main distinction from IFQ/ITQ programs. A vessel will not be limited by that amount once participating in the sector, in that an individual’s share is just used to calculate how much a sector portion will be.

A key difference between sectors and FCs/RFAs may be that membership changes require the sum-of-individual-shares approach. An individual share is calculated to allow for vessels to move from sector to sector or from a sector to the common pool. Another key difference from FCs/RFAs is that sectors are harvest based.

Transferability or reallocation

Under an ITQ system, reallocation is accomplished through a quota market. Quota owners buy and sell quota according to a vessel operating cost structure. NMFS must have a system for tracking individual shares and transfers at the vessel level. Through use of vessel level catch monitoring, NMFS needs to know when a vessel meets its quota.

With a fishing community approach, the fishing community must submit a “community sustainability plan.” This must address the social and economic development needs of the community, including those that have not had the resources to participate in the fishery. It is not clear who is actually responsible for writing the plan. This may be left open for the councils to negotiate with a fishing community that comes forward. It might involve a management board composed of different members of the community. The community sustainability plan will determine how the allocation is harvested. There are many options including effort allocation (capped by quota allocation), trip limits (capped by quota allocation), quota allocated by season, and quota allocated by vessel.

Regional fishery associations and sectors must submit an operations plan, a main difference with ITQs. These plans will determine how the allocation is harvested. The options include effort allocation (capped by quota allocation), trip limits (capped by quota allocation), quota allocated by season, and quota allocated by vessel. Negotiation of any reallocation is internal to the group.

Management responsibility

Under an IFQ/ITQ program, NMFS is responsible for vessel-level monitoring. The agency needs to know when an individual vessel has reached its limit.

With fishing communities, regional fishing associations, and sectors, NMFS is responsible for vessel-level catch monitoring (only to track the progress of a group towards its TAC. It does not matter what the distribution is among those vessels). NMFS also monitors compliance with other non-exempt rules, and may assess fines or penalties to an entire group (under joint and several liability—everyone in the entire group is responsible).

Fishing communities, regional fishing associations, and sectors must negotiate and enforce plans, agreements, and contracts. Management is less centralized under these systems. Once given an allocation, members can take that piece of what they are allowed to catch and establish their own agreements.

New entrants

New entrants under an IFQ/ITQ system must purchase quota through the quota market. With fishing communities and regional fishing associations, some of the quota may be set aside to allow new entry if this is an important objective of the plan.

Sectors can accept new members with eligible permit-vessel shares as this is transferred to the new sector. New entrants into the fishery must buy eligible permits and then become members of the sector.

Advantages and disadvantages of the various systems:

In terms of advantages, all types of LAPPs and sectors are able to recapture rents, allowing for the alignment of economic and conservation incentives. It is in the best interest of fishermen to conserve that resource because it is an asset they need to protect for their future financial liability. At the same time, it is meeting the conservation objectives. LAPPs and sectors are able to align economic and conservation incentives, and reduce regulatory complexity. The long-term outcome is there is a greater level of monitoring and tracking, but there could be a reduction in overall complexity.

Sectors, regional fishing associations, and fishing communities allow for a greater balance of social and economic goals, and more local decision-making. They also allow for a “mixed management” approach. This could be simply subdividing the TAC or it could be something else.

In terms of disadvantages, under all these systems, participants are forced to face allocation issues, and there are increased catch monitoring and tracking costs. With ITQs, the cost of buying into the quota market is a factor, and it is an all-or-nothing situation (not self selecting).

With sectors, fishing communities, and regional fishing associations, there are organizational costs, e.g., hiring lawyers and costs of internal monitoring. NMFS must keep track of varied plans, creating an additional burden to NMFS. One group might be exempt from a certain set of rules and another one might not be. Also common pool vessels are forced into de facto sectors as more sectors form.



Questions and Comments

- Q: Could you talk a little more about recapturing rents through sectors?

A: Mark Holliday talked about the difference between a right and a privilege. The key distinction is we are talking about access to the fish and not the fish themselves. These types of systems try to get at the aspects of a property right, particularly the one aspect of exclusivity. Recapturing of the rents comes from ending the race to fish—having a system where a group of fishermen can fish on a particular allocation to the exclusion of others, and they can plan around that. They are able to plan for when the prices are the best, and to look at how that allocation to the group compares to the cost structure of the vessels in that group. There are some gains in efficiencies on both the harvest side and the production side.

- Q: Regarding the non-exempt rules, would a sector be exempt from an outside quota closure if its members had maintained enough quota within the sector to maintain the fishery throughout the course of the year?

A: Yes. That would be the case. But what I meant by non-exempt rules is this: There might be a rule such as maintaining a minimum fish size that would need to be maintained whether you fished in the sector or not. But another example could be closed areas. In that case, a sector could be exempt from fishing in a closed area where fishermen in a common pool would still have to follow that rule.

- Q: Can a fishery like lobster that is regulated through the commission belong to a sector?

A: I really don't know. I will have to defer to someone else on that.

- Q: Under the advantages to this system basically you note that if it works properly we should get a better system of stewardship that aligns economic and conservation incentives. But wouldn't the current situation of extinction in some case have argued for conservation? Participants would have backed off as fish declined. An example to consider is this: A property has valuable redwood trees. The owner of the property is going to harvest those redwood trees now because they have a high economic value and very little looking into the future—the property owner will not live long enough to see the trees reproduce. How does the system work for slow-growing animals?

A: Using the example you gave, say there is more than one person harvesting from that surrounding area. If one person takes that strategy and the others do not, that individual person does not gain the rewards from that harvest. The incentive changes in an overall quota system. Getting away from the race to fish changes that basic incentive.

- Q: Under management responsibilities you mentioned that government is going to have to monitor and track the catch. We have a serious problem with catch monitoring already. Are there any plans within the federal government to make their data more accurate?

A: That is a legitimate question. Responsibility could be shared. A sector takes on some of those responsibilities to monitor their catch. There is the opportunity to get some collaboration going between those two.

- Q: They do not take what we say now. Is that something that is going to change?

A: The potential is there to work on this.

- Comment: This summary of a sector system as has been presented for the northeast fisheries will just lead to a club. I am 17. I want to fish but I cannot afford to purchase quota.

Response: The new language in the Magnuson-Stevens Act, particularly in reference to fishing communities, recognizes that issue. But there is the possibility for providing for new entrants through the council system.

C. Review of Implementation Status of Sectors

In this session, staff members from the New England Fishery Management Council and the Mid-Atlantic Fishery Management Council provided updates on council actions on sector allocation.

Summary of New England Fishery Management Council's Actions on Sectors

Christopher Kellogg, Deputy Executive Director, New England Fishery Management Council

General information:

In New England, the groundfish fishery is comprised of about 13 different species (19 stocks of these different species). Different types of measures such as trip limits are being used.

At present, the council has to reevaluate the groundfish plan in that we are at the mid-point reevaluation with respect to rebuilding targets. Some of those rebuilding targets extend out to 2029, but it is midpoint for most of the stocks. The science, including the management reference points for all the targets, is being reevaluated during this year. Some of that information will be available to the council in very late spring, we hope, and then the stock status updates are scheduled to be completed in August. The council will be making the final decisions on what will be the TACs for 2009-2010 in the fall in early October.

Sector implementation:

The council implemented the first sector, the Georges Bank Cod Hook Sector, in 2004, and followed with the implementation of the Georges Bank Cod Fixed Gear Sector in 2006. Currently there are just those two sectors in operation. Those groups were allocated a baseline TAC based on six years of landings data (1996-2001).

What is currently going on with sectors? It is evolving as we speak. There is a Groundfish Committee meeting on January 17, 2008, and a full council meeting on the following Thursday (January 24, 2008). The council has to make the final decision at its meeting in early February about what goes initially into the draft environmental impact statement. That does not mean things cannot change, but that is what they want to scope out—what are the alternatives for sectors. The timetable is very quick. Today or tomorrow a discussion paper on sector issues will be posted on the council website www.nefmc.org.

In addition to what is going on in the groundfish plan, the council is undertaking amendments to herring, skate, and scallops, and as part of those amendments, sectors will be considered. Those amendments will likely take a couple of years from start to finish.

Last fall, the council also adopted some policy guidelines for developing sectors. The policy guidelines give the committees that develop these plans some idea of what the bounds are for some common aspects as they go forward. But that is not cast in concrete and can be changed as things develop.

Some of the policies that the council agreed to for sectors were:

- The multispecies sector provisions should be used as a model for future sector development. What is being developed now will likely guide what is being developed for sectors in other fishery management plans (FMPs).
- Each FMP must identify a fixed and permanent baseline for the purpose of sector allocations. [That is an issue for groundfish right now. The first sector was implemented in 2004 (developed in 2003), and the baseline used was a quick baseline of landings history. The council now feels it needs to reevaluate that baseline and take into account some broader considerations.]
- Individual species committees should address the question of sector size limitations. [That is already going under reconsideration—whether the cap of 20 percent will still apply in groundfish.]
- Individual species committees should address the geographic limitations on sectors in the development of their sector programs.
- Individual species committees considering sector proposals must consider bycatch in other fisheries, effort displacement and the impact on common pool (non-sector) vessels, and any other relevant factors when allocating TAC.

- Sectors will adopt annual catch limits (ACLs) and accountability measures (AMs). [The council is looking to make sure sector TACs are in conformance with the Magnuson-Stevens Act requirement for specifying annual catch limits and taking measures to correct how those annual catch limits are implemented if they are exceeded.]
- The calculation of a sector allocation, as a percentage of the total landings, would be based on historic landings only (not discards) but when the TAC is calculated each year and a sector's catch is monitored against the TAC, both landings and discards will be counted.
- The species committees should develop FMP-specific criteria for the approval and disapproval of TAC transfers. If transfers are allowed, they would be on an annual basis, and the sector TAC would be reset each year based on the membership. The FMP may also authorize sector managers to request a quota transfer between themselves, and that they may do so any time after the TACs for the fishing year have been finalized.

Specific issues:

For the plan team working on groundfish, consideration of discards is going to be a difficult issue, because they have to use an assumed discard rate. It is not clear how much flexibility the sectors initially will have until they have established a track record of what their discards may be, or adopt some rules for changing discards at the landings. How to handle discards may be an area where there is a lot of room for increasing the size of the pie. Until performance can be established, the analysts will just have to assume a certain gear type in a particular area or across all areas has a certain discard rate or that the sector may have to take an average discard rate. I do not know that we have any specific provisions or that any are being developed to address that issue right now.

The council is working through the baseline allocation issue. There are two options under consideration:

- Sector allocation that is based on an 11-year catch history (1996-2006);
- 50 percent catch history and 50 percent capacity—the definition of capacity is based partly on vessel characteristics (length and horsepower) and part of it on the Days at Sea allocation of the vessel.

Summary:

Overall, some of the basic areas of sector management involved in the plan are:

- Requirements for sector formations and operations
- Allocation including transfer between sectors
- Mortality controls
- How sectors interact with the common pool, particularly how overages from one group might impact the other group
- Monitoring and enforcement requirements (includes offloading locations and how to monitor discards)

Mid-Atlantic Fishery Management Council: Sectors Update

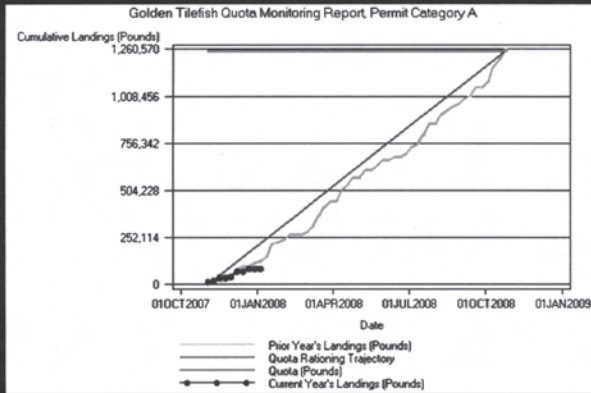
Jason Didden, Assistant Fishery Plan Coordinator, Mid-Atlantic Fishery Management Council

General information:

In the mid-Atlantic region, we do not have sectors such as those that have been set up in New England. What I am reporting are issues that have come up or are coming up, and not a sector policy that the Mid-Atlantic Fishery Management Council already has.

Based on council meetings and in discussions with participants in the process, four major views exist. One view indicates a definite interest in sectors, and a belief that sectors are an end to themselves, and are better than ITQs because of their self-selecting nature. Another view is that sectors are training wheels for ITQs and are a necessary one. A third view is that sectors are training wheels for ITQs and are a sneaky way to get to ITQs. Finally there is the viewpoint of why should we do sectors? In the Mid-Atlantic region we have a history with ITQs. Why not just do ITQs from the get go?

Tilefish



In three major fisheries, some of these views are being expressed. Those fisheries are:

- Tilefish
- Squid/mackerel
- Butterfish

Tilefish:

The graph below shows the cumulative landings in the tilefish fishery versus time; with the orange line showing last year's data and the blue line this year's. In this fishery, three vessels are allocated 66 percent of the quota. They cooperate and fit the definition of a sector fairly well. They may not be a sector in name but they are acting as a de facto sector. The three vessels do a good job of figuring out how they are going to work through their quota throughout the year so the quota will last them the whole year. Other vessels do not collaborate in this way, so the fishery closes for them at a certain point in

the year. This tilefish "sector" will likely be terminating this year because the fishery is likely going to an ITQ approach.

Squid/mackerel:

In the squid fishery, the committee voted in February 2007 to proceed with sectors. That action was postponed in August 2007. The amendment that was on was butterfish rebuilding, and there was a need to progress with that species, not allowing enough time to address the allocation issues for this sector. Sector allocation will likely be included in Amendment 11 or subsequent ones.

There is language in the original plan for squid that addresses sectors, and this includes the following:

- "...authorize sectors in the *Illex* and *Loligo* squid fishery and provide a procedural structure for the Council and NMFS to review, approve, and implement such sectors, through a Framework adjustment or other appropriate action"
- "...If the Council has developed a sector policy at the time of the sector's application, the application will be reviewed for consistency with that policy. However, the lack of development of such a policy will not prohibit the Council from considering a sector application."

There is an interest on the part of the council, and it is trying to move forward to do some sectors. But allocation issues need to be fully fleshed out.

The mackerel fishery is currently open access, but Amendment 11, which the council is working on now, is considering limited access. That may contain a sector provision for mackerel, probably using the same general model that New England has used.

Butterfish:

Amendment 10 deals with butterfish rebuilding, and one alternative proposes what amounts to a bycatch cap on the *Loligo* (squid) fishery. The *Loligo* fishery would be allocated a certain amount of butterfish, and when they hit that, the *Loligo* fishery would be closed. The butterfish catch cap would have a costly observer program. There is the idea of using sectors to cost-share and optimize use of the butterfish catch cap. Some boats may be better or worse at reducing their butterfish catch. They could pool that to try and avoid closures to the *Loligo* fishery.

Questions and Comments



- Q: Has NMFS does any work to distinguish between regulatory bycatch and undersize bycatch in any fishery?

A: (C. Kellogg) That is difficult for me to answer in terms of how they come together in a stock assessment. It is basically mortality. I am not sure there is any reason for NMFS to keep a separate accounting for those, although from a plan performance point of view that is probably an important question.

- Q: I hear you talk about transferring from one sector to another. Does that mean it has to be done through one FMP or can you transfer bycatch from one fishery to another?

A: (C. Kellogg) I do not know where the council would be going with that right now. It can be difficult if there is a certain percentage to the scallop fishery across the board. I do not think you are going to quite get there yet given the timeframe to work on Amendment 16.

- Q: Based on your experience so far on these two different councils, how does sector allocation take account of critical fisheries habitat or ecosystem-based management?

A: (J. Didden) In terms of habitat, if you could reduce the race to fish you have the potential to avoid wasteful fishing practices and to minimize impacts on habitat. There is a lot of flexibility in how the councils could address that.

A: (C. Kellogg) Right now I do not see sectors interplaying much with habitat in the sense that there are specific habitat restrictions that apply to vessels in the different fisheries. It is unlikely that sectors would have an exemption to those restrictions.

- Q: Do you not anticipate delegating some authority over critical fishery habitat to the sectors?

A: (C. Kellogg) Our council (New England) right now has not been able to get started on a fisheries ecosystem plan. They had hoped to start that this year but due to other actions that needed to be done first, there was a constraint on resources. It is impossible for me to say how they envision going forward with that.

- Q: Is the 20 percent cap single-species based? Is there confidence with the allocation history? Right now everyone is racing to request individual history with the agency and there is a lot of controversy with what is coming back. Allocation is the most important piece of the discussion.

A: (J. Didden) The catch issue is coming up a lot with squid. There is some auditing of the data going on at NMFS.

A: (C. Kellogg) I am not sure how the 20 percent cap might apply. Initially with the Georges Bank Cod Hook Sector it was species specific because they just asked for an allocation of one species—cod. I am not sure how that will work with multiple species. Jason Didden has spoken to the data issue. The capacity option would not rely so heavily on the landings data. I am not sure why the capacity formula was chosen. Probably it had more to do with perceived inequities in fishing opportunities in the past 10-15 years as the result of regulations.

D. Case Studies

In this session, information was presented on three case studies of sectors. The Georges Bank Cod Hook Sector and the Georges Bank Cod Fixed Gear Sector have been in operation since 2004 and 2006 respectively, and are currently the only approved sectors in New England. The Shetland Fish Producers Organisation has been operating in the Shetland Islands since the early 1980s. Representatives of these sector organizations were asked to present an overview of how their sector was formed, how it operates, and what impacts it has had on its members.

Georges Bank Cod Hook Sector and Georges Bank Cod Fixed Gear Sector *Eric Brazer, Fisheries Policy and Management Coordinator, Cape Cod Commercial Hook Fishermen's Association* *Jan Margeson, Commercial Fisherman, Chatham, Mass.*

Session moderated by Syma Ebbins, assistant professor in residence, Department of Agriculture and Resource Economics, University of Connecticut

Eric Brazer:

How the Cape Cod sectors got started:

Back in the early to mid-1990s, fishermen were experiencing what they considered to be a crisis—dwindling fish populations, complex regulations, and bycatch issues. Fishermen were not making as much money, and some were going out of business. It appeared to be a bona fide disaster.

A group of fishermen on Cape Cod, in Chatham specifically, started meeting with each other and trying to identify a solution to these problems. They saw that the regulations were not putting the fish first, and they were not protecting the habitat that needed to be protected. There was a lot of discard waste involved.

This group realized they had more of a voice if they organized, so they got together to form a collective voice. They met in basements, bars, and coffee shops in Chatham and throughout Cape Cod, and they started researching how fisheries in other regions had solved these problems. They looked to fisheries in Alaska, British Columbia, and Nova Scotia, and the idea of hard TACs kept reoccurring. They considered whether a hard TAC could work here in New England.

The idea was fairly radical at the time. There was a fair amount of opposition to it, but the fishermen kept moving forward with the idea. They pushed the concept of accountability and operating within a TAC. When you catch that TAC, you are done, and you are not overfishing. That is how this concept of sector management in this region was born.

Formation of the Georges Bank Cod Hook Sector:

The Georges Bank Cod Hook Sector was set up to create a sustainable hook and line fleet in Chatham on Cape Cod, and to preserve a hook and line fishery in the region. It was also set up to stop overfishing on Georges Bank codfish, to promote community-based management throughout New England, and to promote stewardship of the resource by creating a working model that other communities could use and adjust to fit their businesses and fishing operations.

The hook and line fishermen began working with members of the New England Fishery Management Council and state and federal legislators to promote their idea. They went to numerous meetings throughout New England and in Washington, D.C., and were rewarded in the summer of 2004 with the implementation of the first groundfish sector in New England. The long name of the sector formed is the Georges Bank Cod Hook Sector, but it is known in short as the Hook Sector.

How the Hook Sector operates:

The Hook Sector started out with approximately 60 hook fishermen, and their TAC was about 12 percent of the overall Georges Bank cod TAC. The sector hired a manager to oversee the operations of the sector, and to communicate with NMFS and other organizations in the region.

The Hook Sector has a democratically elected board of directors and an infractions committee, which has a list of penalties and fines that it is obliged to enforce upon its members if infractions occur and rules are broken. These fines and penalties are not substitutes for the fines and penalties handed down by NMFS. If a rule is broken, whatever sanctions are imposed by NMFS are separate from the sanctions imposed by the sector.

The sector has increased reporting requirements. The fishermen are required to submit copies of their vessel trip reports and their dealer slips to the sector manager within 48 hours of landing. The manager is required to report the total Georges Bank cod catch on a monthly basis to NMFS until 90 percent of the TAC is reached. At that point the reporting goes to weekly. Once 95 percent of the sector's TAC is reached, the reporting goes to daily.

There is a fee structure associated with keeping the sector up and running. The two sectors (Georges Bank Cod Hook Sector and the Georges Bank Cod Fixed Gear Sector) have different fee structures, but essentially the Hook Sector operates on a per-pound-of-fish-landed basis.

Annually, the sectors are required to submit copies of their harvesting rules, operations plan, and environmental assessment to NMFS. The harvesting rules are the rules that the sector is going to operate under. The operations plan is a legal document that basically shows how the Hook Sector is going to operate within those rules. The environmental assessment assesses what sort of effects the sector is going to have on the environment, the rest of the fishing community, and the habitat. These documents are time consuming to generate but they are necessary to show that the sectors have a positive conservation impact on the environment.

The Cape Cod Commercial Hook Fishermen's Association is working with the two sectors to develop a monitoring program. At this point, sectors are not required to have any additional levels of monitoring other than the rate of federal observer coverage. We have taken that to the next level and have started developing a catch-monitoring program.

Future of sectors in New England:

There are currently just the two groundfish sectors in New England—the Hook Sector and the Fixed Gear Sector—but there are numerous sector applications on the table for Amendment 16. Hopefully they will come into operation in 2009 on time. We are seeing more industry collaboration now, and collaboration is absolutely necessary given the timeframe we have for Amendment 16.

It has been publicly stated that the NMFS regional office does not have the resources to move forward with this, so the burden is on the industry. There have been numerous workshops, and members of the industry are working with each other to identify the issues and find solutions. The more work the industry can do, the better the chance we have of moving this forward in the direction we would like to see this go.

The standards for monitoring are increasing, and this is being developed on an industry basis. The Cape Cod Commercial Hook Fishermen's Association and other groups in New England are also looking at the concept of permit banking. As one young gentleman explained this morning, the costs to enter the groundfish fishery are debilitating and, to an extent, prohibitive. We are not seeing the younger generation of fishermen coming into the fishery, and one of the reasons is that it is too expensive to do so. Permit banking is a way for nonprofits and other industry groups, who may have more capital to raise money, to purchase permits and hold them in trust in their community to allow for younger fishermen to have an option.

The key here is that sector management is not about managing fish—it is about managing people, specifically managing human behavior. A sector in and of itself is not the silver bullet. A sector alone will not solve the problems we are experiencing in the fishery today because a sector is only as effective as the people who are involved and the management that allows it to move forward. What we are seeing today in terms of industry groups collaborating and high attendance rates at workshops is the only way this is going to move forward. There must be continued collaboration among the industry, management, science, and the general public.

Jan Margeson:

Formation of the Georges Bank Cod Fixed Gear Sector:

In reference to the Georges Bank Cod Fixed Gear Sector, we first were not sure how to start. We started talking initially among ourselves in the parking lots about things that were not working correctly. The biggest problem we found was that on some days, we could go out fishing and catch 5,000 lbs. of codfish. The very next day you would go out and catch 500 lbs. of codfish. And we were working on a 1,000 pound daily trip limit. Our daily limit was not making any sense to us.

To the fishermen it was very frustrating. On some days when you haul back on your net and you have too much fish, you dump it on the deck only to see what you have to shovel back over. You would find yourself trying to figure out what is going on here. Things were not right. It was a stupid plan, and we were not happy by any means.

So we did recognize that we had a problem but initially there was animosity among the fishermen. People may not like each other on the water, so it was hard to get them in a room and move past differences. Coming together was hard.

After a few months of meetings we started to get past that. We knew what we wanted to achieve and we had the benefit of the Hook Sector going before us. We had them to help guide us.

Our goal was to work under a hard TAC. We just felt if you went out and caught fish for just half the year but caught the same amount of fish that you were catching, it obviously would be a lot more efficient. Given the high cost of diesel fuel (\$3.00 to \$3.50 per gallon), to go out and throw fish over and then come back the next day did not make any sense to us.

So we made everything come together by having several meetings with all of us. We had a lot of people who were initially interested, including all the boats in Chatham. As we went along we made up the rules, and we knew we needed money to start up the organization. We needed funding to hire a sector manager, people to do the environmental assessments, and to get office space. We started by taking a year to generate \$10,000 apiece to establish a pool of money. After a year we had a lot of people who were on the fence about joining. The money issue made them think twice about it, so about one third of the fleet decided to sit back and wait and see what would happen in the first year.

Initially we spoke one on one with all the council members to get them involved and show them what we were trying to do. We tried to get a sense of whether the sector proposal would get approved.

We were successful in our efforts. It did get approved, and the sector came on line this year for the first year with the initial allocation based on the years 1996–2001. We have done fairly well. Some people have caught their quota, and some have not yet caught their quota, but it has worked well in terms of being able to keep pretty much everything that we are catching.

We have been very concerned about monitoring, and have set up our own in-house monitors. We have brought in a company from British Columbia to set up some cameras on the boats, and the video monitoring system has worked well. We thought we would be coming under more scrutiny and decided to take care of the monitoring issues that were sure to come.

This is now the second year coming up. The ones that did not get into it have signed in this year, so now we have about 75 percent of the fleet involved. It is kind of an evolutionary process. We started by generating money first, and now we are charging ourselves 5 percent on the gross. We might be able to work it done to 3 percent. We talk about things such as this as we go along, and try and make things work.



Questions and Comments:

- Q: Of the people who joined the sector, was there anyone who volunteered all of their fishing allocation to the group and then sat back and did not fish?

A: Everyone that was in the sector was an owner/operator and everyone did have his or her own individual histories that were given to us. The sector as a group had the combined histories of everyone, and one of the issues included figuring out a way to decide how much each individual would be allocated. Once we have the initial sector, it is up to the members to decide the portion of the quota—or how much effort gets to go. Initially there was some controversy over the fact that some people had a lot of quota and some did not, although most people were in the middle and had caught similar amounts. We tried different ideas like putting it all together and dividing it up equally so we could start out equally. Some people who had fished hard over the years and had caught a lot of fish did not want to give their fish up to people who did not go fishing very often. We had a vote and decided we should all just retain our histories, and fish according to the way it had been.

- Q: Regarding the Hook Sector, you started with an initial number of permits and an initial number of vessels and an initial number of operators. I have been told that those numbers have been greatly reduced. Can you tell us why?

A: In the first year of operation, the Hook Sector had approximately 60 members and for the most part it was one boat, one permit, one operator. We are looking ahead to the 2008 fishing year and

we are down to 19 individuals. This is for a number of reasons. Some of the Hook Sector members have left the Hook Sector and joined the Fixed Gear Sector. The Fixed Gear Sector allows the use of sink gill nets. Gill nets are a more efficient gear than hook gear. The ultimate reason why, and a vast number of members of the Hook Sector can attest to this, is we are not seeing the numbers of Georges Bank cod that we have in the past. The hook fleet is disappearing because of that. The hook fishery is disappearing. The profit margins in hook fishing have been reduced so much that of those 19 hook participants next year, only three of them are considered full-time hook fishermen anymore. For the rest of them, it is a part-time gig. Some of them will not fish at all. They contribute to the sector. They have history associated with their permit but they have left the hook fishery. It has been a resources problem—that is the primary reason why we have lost so many hook fishermen.

- Q: What kinds of reduction in operating costs have members of the sectors experienced?

A: Initially it cost a lot of money to get started. Jan Margeson had mentioned the figure of \$10,000 per person. That was something that was decided upon for a number of reasons including the fact that we had legal advisors all on retainer. They cost us quite a bit, but they are a necessary part of the process. Having that legal component and that legal advice was necessary. As we are progressing with the sectors we are looking at being able to reduce the costs. With the increased efficiency in the fishing, there are reduced costs as well. But at this point we are still trying to quantify that for our annual report. As Jan Margeson mentioned, there are fishermen who have caught their individual quota and they are done fishing for the year. It is probably safe to bet that they have increased their overall efficiency and their overhead costs have been reduced and their profit margin is greater this year than it was last year when they were outside of the sector.

- Q: You mentioned some of the vessels are part time now and maybe did not even fish the allocation that they were given, and that allocation went into the pie. What happened to the history of those boats that decided to give that into the pie? Do those boats retain that fishing history? And if you have a surrogate boat fishing for that stock, which vessel retains the history?

A: The boat that lands the fish gets credited with the history. Right now the history that is associated with the sectors is based on a 1996–2001 baseline period. So for those vessels that have history associated with those years, that history is translated into current quota and that quota is applied to the sector. Now the Hook Sector has never achieved its quota in any of its years of operation. In the first year of operation, the Hook Sector caught 33 percent of its quota and it has been declining ever since. That quota is there but essentially it remains in the water.

- Q: So the vessel that fishes it is taking over another vessel's history?

A: Yes. That is right.

- Q: So that is kind of putting this vessel out of business or never fishing for cod again.

A: The vessels who are not fishing have actively chosen not to fish for a number of reasons. With the Fixed Gear Sector we have decided our quota on an individual basis. What history you brought to the table is yours to catch in a current year. With the Hook Sector it operates only on monthly quotas. So of those 19 fishermen in the Hook Sector next year, those fishermen do not know what their individual histories are. They know what the cumulative history is. They found it more worthwhile to bring that quota in to a sector and keep it under a hard TAC, even if they do not fish it and no one else may fish it. They felt there was more benefit to doing that than leaving it in the common pool.

- Q: Redirected effort is a serious issue in the Mid-Atlantic region and New England. Do the vessels that have dropped out the Hook Sector or decided to go to the Fixed Gear Sector redirect their effort into trawl fisheries targeting species such as fluke, squid, and scup?

A: No. I do not think any have. The effort that we have lost with both sectors has disappeared. We have not seen any substantial redirection of effort into other fisheries. That was a very big concern when the Fixed Gear Sector was moving through the council approval process. Many council members were

concerned about a redirection of effort. While we are operating under a quota of Georges Bank codfish, we still have Days at Sea as a proxy for effort on other species and given the nature of our fleet, there is not much to redirect on in that area.

- Q: Regarding the people who left the sector, have they left fishing completely?

A: I do not know specific numbers but the vast majority of them did. I believe that only three of them left the Hook Sector to return to the common pool. But a majority of them have just gone out of business. They are in construction for the most part.

- Q: You mentioned permit banking. Is that something you commonly do?

A: We are in the process now of seeking permits and purchasing permits to hold them in trust in Chatham.

- Q: Do you have any at the moment? What does a young person do when they want to come to Cape Cod and go hook fishing? How does he get into that?

A: If he is interested and willing to operate under the sector rules and the standards that we have set for our fleet, then business details have to be worked out between the permit bank and him. The primary goal of the permit bank is to allow access to a future generation of fishermen or current fishermen that may have experienced hardships that forced them out of the fishery.

- Q: Will it be feasible for a young person to be able to afford to get into this business?

A: If he is willing to operate within the standards and the accountability measures that we are operating our fleet under, then we would work with him to bring him aboard.

- Q: You started with 60 members in the Hook Sector, and you are down to 19 with just three full time. Is this the way of the future?

A: I hope not. The primary reason we have seen that decline is because of the inefficiency of hook gear and the resource problem for Georges Bank codfish. On the other hand, we have seen an increase in the number of Fixed Gear Sector participants. We are increasing from approximately 10 to about 15 for this coming year and we anticipate bringing more people on board as well. But hook fishing is unique. The abundance of dogfish is another factor. Hook fishermen are seeing such an impact of dogfish on their fishing operations that it is greatly reducing the effort on codfish.

- Comment: We have bigger biological problems than allocation problems.

A: I am not qualified to rank one against the other. I think they both are an issue. By operating within a sector under a hard TAC and by not exceeding that TAC you are guaranteeing for that fishing year you are not overfishing. It is a step in the right direction.

- Q: Did anyone from the Hook Sector move over to the Fixed Gear Sector?

A: Yes. That has happened with two members.

- Q: And when they moved over from the Hook Sector to the Fixed Gear Sector, how did they decide what allocation they took with them?

A: They take the portion of the history with them that is accrued to them – that was caught on that permit during the qualifying years, which are the baseline years of 1996–2001 that have currently been approved for the sectors. What they went in with and leave with they go with into the second sector (percentage-wise of the overall fishery).

- Q: Your sectors are often used as examples of how to do a sector type of management. Could you share with this group some of the top design features and lessons that you have learned?

A: Primarily we are a fairly homogeneous fleet. It is not a requirement for a sector but it certainly makes things easier. We are a small boat, hook and line and gillnet fleet that targets Georges Bank codfish. Our trips last 12 to 18 hours for the most part. We have a lot of commonalities that occurred within our community. The Chatham/Harwich port community is very homogenous and that allowed us to move forward very quickly. One of the primary reasons we agreed to do this is that we agreed that it is stupid to waste fish. We agreed that the current system of Days at Sea was not working for our fleet. We all agreed that we would work under a hard TAC in return for an exemption from the daily trip limit. And once we reached that TAC we would shut ourselves down. It is a mindset—an understanding that the current system is flawed for our fleet and identifying a solution that works for our fleet. And that is the direction that we moved in. Granted there are now a lot more sectors coming on board with different gear types, larger areas, and different species targeted. Keeping that in mind you have to focus on the end goal—stopping overfishing and providing something that works for your community.

- Q: You mentioned that the major reason for the Hook Sector decreasing was because of the resource availability. But it seems like the major difference between the two sectors is that the Hook Sector allowed the vessels to get together and pool their shares while the Fixed Gear Sector decided to keep their individual shares. Would you say that major difference is why one is growing and one is shrinking?

A: I would say that the problem is with hooks, and that they can only take one fish and lately the fish have been dogfish. When everyone goes out to catch fish they run into this huge problem. They set their gear and haul it back. With the gillnets you will catch dogfish but you will still catch other fish. So with two boats going out, one will come back with nothing, and one will have discarded dogfish but still have groundfish. So that is why I would say the hook fishermen are continuing to decline while the gillnetters are still maintaining.

- Q: Once a vessel in the gillnet sector caught its cod, it still has its ability to keep fishing with its Days at Sea. They can go to another fishery once their individual quota is caught. Do you think as sectors are being developed now, and with NMFS managing for the weakest species, will there be a different scenario than what you are operating under now? How will that impact you?

A: We are a Georges Bank cod sector—when we catch that cod quota we cannot continue to fish with gear that is capable of catching Georges Bank cod. So for instance in the case of guys who fish for cod in the summer and then go fish for monkfish below the Islands in the winter, if that sector has caught its entire cod quota you cannot go monkfishing down south because there is still the chance that you could catch a codfish with 10-inch mesh. We are not in a situation where we have members that fish for squid or fish for butterfish in other fisheries that use different gear types. The premise is that once you have caught your quota you have to restrict yourself so that you cannot possibly catch another of that species.

- Comment: So you shut yourself out.

A: Correct. For groundfish. But if the fisherman is also a lobsterman or a striped bass fishermen or something like that, they can continue to do that so long as there is no chance of them catching Georges Bank cod. All Georges Bank cod that any member of the sector catches has to be accounted for in that quota.

- Comment: Under a hard TAC program, theoretically, we could be completely shut down on haddock, yellow flounder, skates, everything else when we reach that one hard TAC. Hard TACs are going to devastate the fishery.

A: That is why some of the issues the council and the industry are contending with right now are so contentious and so important. The 20 percent cap on quota, the ability to trade quota between sectors and how that process is outlined and defined are all ways to mitigate a shutdown. We are still in the process of trying to figure that out now. It is a huge component of moving forward—a multiple TAC system.

- Q: Have you had the ability under the way that you use your quota to use it as an asset for any kind of capital generation?

A: Capital generation to the sector itself (to the sector or to individual members for capital expansion, repairs, etc.) has been a backburner issue. We have not needed to address it at this point. It is something that we will be considering in the future, especially seeing the direction that the council goes with Amendment 16. It is uncharted territory for us at this point.
- Q: (Addressed to E. Brazer) I have a conservation question. I know during your graduate work you produced a photo of a codfish that was taller than you are and back in the early 1900s people fishing for cod would get fish on the order of 100 pounds. You are describing a situation of a pool of fishermen dividing up a small pool of small fish. From a conservation perspective, do you see this sector allocation approach actually being the right step towards conservation?

A: Sectors are hard TAC programs, and so if you are operating within the hard TAC you are not overfishing. (If the TAC is correct.) There has been such a huge problem with discarding, and often times it will not show up on the vessel trip report but it will show up in the stock assessment or the trawl survey. We need to define these limits and operate within them and rein in the effort, so it is a step in the right direction, although it certainly is not the silver bullet. It will have to be accompanied by other conservation measures, whether they are imposed by the council or decided upon and implemented by the sector.
- Q: Do you think that these sectors might take on some voluntary conservation measures? For example maybe there ought to be a moratorium on catching cod.

A: I think it is more realistic to expect that on a sector-by-sector basis than it is to expect that on a regional basis. We had situations this year, because we are operating under a TAC instead of the daily trip limit, where the market forces played a larger role in deciding when and where to fish. And I had numerous fishermen tell me that they brought their gear home because they were not going to kill codfish for \$1 a pound. So that is just one example of how sectors can change the behavior of fishermen because it aligns economic business incentives with conservation measures.
- Q: You are operating under the Amendment 13 baseline. At this point it looks as though the council will not use this for the 17 or so sector proposals that are before the council now. It is likely that there will be a different baseline or a baseline that includes something other than history. Have members of your sector given any thought to what changes you might want to have in the baseline we are using or to quota adjustments? How would you deal with that?

A: That is a very good but very difficult question to answer at this point. Our fleet is traditionally a small-boat fleet and we have good history. We are operating under a baseline period that has not been identified for Amendment 16. What concerns us regarding this is the need for some type of consistency in decisions, and recognition of prior decisions in moving forward. The industry and the council committee have made a lot of progress in narrowing down the options for allocation, and we are interested in seeing where the council goes.
- Comment: I am pretty sure the council is not going to go with the Amendment 13 baseline. It is on the list as the status quo, but I have not talked to anyone who is in favor of that.

A: It is going to be an interesting discussion, and that is the reason why allocation is such a hard thing to decide and why it has taken us so long to make the progress that we have. Given our condensed time period, it is going to be pretty contentious at the meeting this week and the council meeting next week.
- Q: If cod are disappearing, to what extent is sector allocation simply a band-aid on a gaping wound? Maybe we ought to be coming to grips with much more stringent limits on taking those species.

A: Not discarding codfish (on some days we are probably killing more than we keep), is a conservation plus. It will help the stock and the fishery by not shoveling overboard all of those thousands of pounds by a hundred boats. We probably kill more than we keep.

- Comment: New Zealand addressed this by retiring 5 percent of the stock, and basically saying we are going to withhold 5 percent of the TAC to represent the public interest in the survival of that species. And that is one way to do it—to ensure rebuilding.

Comment: Part of reason for asking for that question again is because I wanted the industry to pick up on what she was asking. Quite frankly, part of the inefficiency of your plan has been a de facto retiring of the quota, and I do not think that was your intent. I don't think that was the intent of some of the people that are in the industry right now.

Comment: The reality of things is we are not hitting our TACs right now. We are not hitting our TACs on most of the stocks that we fish on. And it is not the landing mortality that is driving the bus on some stock's ability to come back—it is the built-in waste of our current management strategies that is making stock recovery a slower process than it should be. These guys are at the cutting edge of doing all they can for the resource and their inability to get what they had in the past. They are doing their share and more.

- Comment: According to the trawl surveys and according to the science, the Georges Bank cod stock is increasing and the overall TAC has been increasing as well. So occasionally there may be a disconnect between what is being seen there, and what is being seen within the sectors based on how the sectors operate.
- Comment: The landings mortality may not be the reason for the retardation of the recovery of the cod because we have a very serious discard problem. We also have some habitat issues with cod that need to be addressed that may have more impact on the population that the Georges Bank fishery does.
- Q: From what you were saying, I thought that it was not a matter of cod not being there to be caught but that they were having a hard time catching them and they did not want to sell them at the low market price. Fishermen did not want to go out there and waste their time catching dogfish, and they don't want to waste their time catching cheap cod. Is that a factor? Maybe the codfish are there but you just cannot get to them?

A: That is definitely the problem with the hook and line fishery. I have experienced it myself. You set and come back with 90 percent dogfish—you are just going backwards. It is an economic problem. You can only do that so many times.

Comment: The codfish could be there but you cannot get to them because of all the dogfish.

Comment: The hook and line approach is not the best way to target cod given all the dogfish.

- Q: What is the mechanism to allow new participants into the sector and what is the cost to them outside of the 5 percent (you said initially there was a \$10,000 cost to start the sector per person)?

A: Even still we have a \$10,000 price tag on the initial entrance fee. All the members felt they just wanted to be equal so that is what we have done so far.

A: It is something that we are looking at and are visiting over time. As we move forward with the sectors and with sector development (and not just us but with other sectors in the region and with NMFS) there may come a time when we can cut that back and make it a little more palatable to people who may want to join.

- Q: Is the permit banking going on in the Hook Sector or the Fixed Gear Sector?

A: It is separate from the sectors. The organizing that is connected with the permit banking is not coming directly from both sectors. The sectors would be a place where those sectors would be held in trust.

- Q: So you are buying the permits and banking them but neither sector is doing it?

A: It is a program of the Cape Cod Commercial Hook Fishermen's Association.

- Q: Does what you invest in buying the permit have to be recovered when the permit is sold?

A: I am not directly involved with the permit bank itself. But I believe that the goal would be to get that return on the investment. We are looking at permit banking because we have seen permits migrate out of our community and we want to preserve that opportunity for fishermen that may want to come in. We are doing what we can to maintain that opportunity to fish.

- Q: What percent of the total cod allocation is covered by your two sectors?

A: The Fixed Gear Sector has about 9.5 percent and the Hook Sector has about 7 percent.

- Q: Has there been any increase in price per pound for the fishermen involved in the sector? Because of your ability to fish all year and control your landings has there been any value added for the landing's price?

A: Not yet. That is one of our goals but we are taking it one step at a time. We have not gotten that far.

Case Study—Shetland Islands

Brian Isbister, Chief Executive, Shetland Fish Producers Organisation

General introduction:

The purpose of this talk is to present information on the Shetland Fish Producers Organisation in the Shetland Islands. It is not intended to suggest that this experience is the correct way. Fishermen have to be able to see that it can benefit their circumstances if a sector is to work.

The Shetland Island experience is based on working within a management system in the United Kingdom that has been evolving during the past 20 years. There have been economic, ecological, and political challenges that members of the Shetland Fish Producers Organisation have continually had to respond to. Their sector management approach has had to adapt constantly to meet these challenges.

Fisheries play a vital role in the Shetland Island's economy. The sector arrangement has given fishermen a measure of responsibility, and they have been using that to sustain and develop their industry.

Background information:

The Shetland Islands are in the most northerly part of the United Kingdom. They are part of Scotland, so they are governed under the jurisdiction of the Scottish Parliament. The islands are surrounded by the North Sea and the Atlantic Ocean, and their remote location is a factor in exporting their produce to market. But the waters around the Shetland Islands are some of Europe's most prolific fishing grounds.

The Shetland Islands are a small community, with a population of only about 22,000 people. Land-based industry has always been restricted, so residents have been tied to harvesting from the sea for centuries. Commercial fishing has been important for the past four or more centuries, and fishing activity predates the Viking era.

The combined value of the Shetland Islands' entire seafood sector (including processing and aquaculture) is worth about \$440 million. This equates to about 44 percent of the islands' entire economy. The Shetlands fishing fleet today numbers over 120 vessels licensed for commercial activity, and they belong to three distinct segments: pelagic, whitefish, and shellfish sectors, with most of the commercial activity in the pelagic and whitefish sectors.

The shellfish fleet is the largest in terms of vessel numbers, but it only accounts for about 7 percent of the total catch value. Many operators work only on a part-time basis, and many of these vessels are small (20 to 30 feet). They are inshore based, catching brown crab, velvet crab, and lobsters. Larger vessels up to 45 feet catch scallops. The fishing opportunity for the smaller fishing vessels in their fleet has not been marginalized by any policy intervention. They are limited by natural factors such as the lack of extended shallow and sheltered waters. The severe weather restricts smaller vessels from fishing further offshore, and this has limited the development of this industry.

Vessels prosecuting the whitefish and pelagic fisheries have generally adapted to become larger and more specialized. The whitefish fishery is comprised of cod, haddock, whiting, ling, saithe, and groundfish species such as monkfish, megrim, plaice, dabs, and lemon sole. The fishery has 22 Shetland-based vessels fishing year round. These vessels are 55 to 85 feet in length, with engine power ranging from 250 to 1,000 horsepower. They are mostly trawlers, with the more powerful boats using twin-rig trawl arrangements. Some vessels also use the more economical seine-net method to catch whitefish.

Target species for these vessels vary predominantly between haddock and monkfish, but they have a mixed fishery with seasonal variances in abundance among the various stocks. The value of the whitefish fishery in 2007 was \$30 million.

In the pelagic segment there are eight vessels ranging in size from 200 to 250 feet. They are specialized pelagic trawlers similar in design to that used throughout the Northeast Atlantic region. They catch mackerel, herring, blue whiting, and the vessels work to catch dedicated species in specific seasons. Their catch last year was worth almost \$60 million.

Vessels in the whitefish fishery and pelagic segment, together with nine smaller 40-foot boats that fish for shellfish and whitefish, make up the membership of the Shetland Fish Producers Organisation (SFPO). There are a total of 37 vessels in the SFPO today. Back in 1982 when the organisation was first recognized, there were 72 vessels in the membership.

How the Shetland Fish Producers Organisation got started:

The United Kingdom joined the European Economic Community (EEC), now known as the European Union (EU), in the 1970s. There was a less-rigid structure to control fisheries prior to this time, and the economics of the industry was a more decisive factor than management of fishing effort or the use of conservation methods.

Initially the European community approach was focused on the creation of access arrangements to ensure member nations had equal access to the common resource. This was in keeping with the common market approach by the EU. The United Kingdom adopted the principle of Fish Producers Organisations (similar to those already established on the European continent). Organizations were made up of fishermen sharing similar objectives, with them usually coming together from the same port or region. The organizations were recognized under European legislation, and were provided with access to market support mechanisms. In return they assumed the responsibility of ensuring the improved marketing of their products through the regulations of their members' landings. The goal was to have a minimum market price structure in place to stabilize fishermen's incomes and make them less susceptible to the vagaries of the market.

In Scotland there was initially just one organization to cover the entire country. Then there was the recognition of the need to have common regulation for all fisheries in European waters. By the early 1980s, EU member states had agreed to a centralized structure for EU fisheries known as the Common Fisheries Policy. This arrangement resulted in quotas as a management tool, with each member state within the EU Common Fisheries Policy receiving a fixed share of the EU fisheries resource.

This centralized approach to fisheries management has never been popular with Shetland fishermen. In the 1980s, with the use of quotas, fishermen wanted more responsive industry organizations capable of better supporting their marketing needs. In the United Kingdom, a number of regional producer organizations were established.

In 1982 the Shetland Fish Producers Organisation was formed. All the vessels in the pelagic and whitefish sectors joined the Organisation at the onset. Although the number of overall members in the Organisation has dropped, it still represents all of Shetland's larger commercial vessels.

The Organisation is run on a commercial basis with a board of directors elected from the membership on a rolling biannual basis. Vessel agents are also represented on the board. Policy is determined by the board and is implemented by a staff of four. The Shetland Fish Producers Organisation is funded solely by its membership through a levy charge that is raised on the value of landings, and commercial investments have been undertaken by the Organisation on behalf of its membership. It has invested significantly in improving Shetland's marketing structure. Projects undertaken since 1982 include enhanced whitefish, pelagic and fishmeal processing, and investments in facilities for the electronic auctioning of fish. Also, a significant investment has been made in securing additional quota opportunity on behalf of members.

Introduction of sector allocations:

In 1983, the Common Fisheries Policy resulted in a centrally managed government quota system. This approach did not meet marketing needs at the regional level. In 1984, the Shetland Fish Producers Organisation negotiated with government and fellow industry players, and was successful in convincing them to devolve quota management to the Producer Organisation level. There was a trial with the North Sea haddock fishery in 1984, and the sector approach was successful. There are now 96 separate stocks across United Kingdom waters that are being allocated on a sector basis and are being managed by 19 separate Producer Organisations.

In the United Kingdom, a sector is defined as the collective management by Producer Organisations of the quota share they have been allocated, with the non-sector being the residual amount still managed centrally by the government. Today some 95 percent of the United Kingdom's quota is managed on a sector basis.

Government encouraged this process. Quota allocation decisions were passed on to the fishermen themselves in the form of their Producer Organisations. Each Producer Organisation's share of the United Kingdom quota is determined by the overall performance of its membership at the time. Individual catch performance figures (track records) provided the basis for determining the amount of quota allocated to each group.

Initially track records were created by the sum of the vessels' performance over the average of a rolling reference period based on the three years prior to the quota year (this created a use-it-or-lose-it situation for fishermen). Administratively, this methodology proved to be somewhat cumbersome in its application. It was replaced with a fixed-share system in the late 1990s. A system of trading quota had been developed by this stage. Fishermen began to see their defined share of the overall quota allocation. The movement of quota has been facilitated by the transition to the fixed-share methodology of allocation.

Originally the quotas allocated to a Producer Organisation were managed on a collective basis through monthly allocations to members. As the system of fixed allocation evolved, some organizations have developed an individual-vessel management approach to quota allocation.

The United Kingdom licensing system also evolved during this time. There are three components to the licensing system: 1) permit to fish (restricted number of licenses); 2) capacity of the license (determines the size and type of vessel to which the license can apply); and 3) fishing entitlement or quota attached to the license. Fishermen are reallocated their licenses each year on a no-cost basis. Quota entitlement remains the ultimate property of the state, but fishermen have a legitimate expectation that they can retain their quota entitlement from year to year.

Quota can be held separate from vessels. Fishermen have the ability to separate quota entitlement from the original license upon which it was created. License holders have the choice of using the complete package on their vessel or separating the capacity units and/or quota for aggregation with other similar licenses.

Given the degree of flexibility within the licensing system, from an administrative perspective and from a user's point of view, it became sensible to fix quota shares. Today their entire quota allocation is managed under this fixed-quota system. Quota management is now a major part of the work of Producer Organisations in the United Kingdom.

Shetland Fish Producers Organisation's experience with sector quota management:

The Shetland Fish Producers Organisation has largely benefited from sector quota management. By controlling quota, members have the ability to match fishing effort to fishing opportunity in a way that cannot be accomplished through a centrally managed system. They can swap quota opportunity with other Producer Organisations and even internationally with a member state. The Shetland Fish Producers Organisation operates a common management system for the whitefish fleet, and an individual allocation system for the more seasonal pelagic sector. The Producer Organisation has used the flexibility of a sector management approach to maintain and develop a community approach, and through control of their quota, members can realize the aims of the organization better.

In general, holding control over quota brings confidence and business development opportunities. The Shetland Fish Producers Organisation has developed partnerships with other community organizations to enhance markets for its members, and has developed facilities that are used by fishermen from other areas and nations. An example is the development of a pelagic processing operation through a partnership with the local port authority. The Shetland Catch Processing Facility annually produces between 80,000 to 100,000 tons of frozen product each year for the world market.

Another example is the establishment of electronic auctioning for whitefish markets in the Shetlands. This was introduced four years ago, and since then fishermen have seen year-on-year increases of 25 percent in the volume of landings being made, with their market paying higher prices on average than many United Kingdom markets.

One of the problems with quota management is that the EU Common Fisheries Policy provided stability with regard to quota shares but has not dealt well with issues brought about by climate change and ecological change. An example is the North Sea cod collapse. The political response resulted in the Scottish whitefish fleet being cut in half. This measure hit indiscriminately hard on a fisheries-dependent area such as the Shetlands. A one-size-fits-all approach to strategic management issues can be difficult to deal with at the grassroots level, particularly in the case of cod since this species never left the Shetland waters and is more abundant than has been the case for decades.

Quota entitlement has been available to trade, and from the mid 1990s, the total number of vessels in the United Kingdom fleet has been in decline. The means of securing access to the fishery attracts a monetary value, an unavoidable situation. Fishermen wanting to stay in the industry long-term have been the ones to invest. In 1993, the Shetland Fish Producers Organisation was able to secure quota from two member vessels that were being decommissioned out of the fleet. This became the start of a policy to secure more quota opportunity on behalf of their membership to ensure members will have access to quota opportunity.

Questions and Comments

- Q: What is the role of science in determining the TAC and the quotas? Who is contributing to that science?

A: In Europe, there is a well-established system of science evaluation that is based on the work done by the International Commission of European Scientists (ICES). They involve fisheries scientists from all the member states, and it is usually dependent on the main species of the countries involved. It is partly evaluated on a socio-economic basis. What the impact of the science may be is considered. That is thrown into a political mix from year to year and what happens is what happens. TACs evolve from that process. In Europe, the international agreements on some of the fisheries, where you take into account the activities of Russia, Iceland, Greenland, and some of these other countries and the ever-present political wrangling between Europe and Norway regarding fishing shares, is a complicated mix that goes into calculating the TAC at the start of each year. But once that mix has been stirred up and the cake has been baked, then we have to take our slice and try and manage it.

- Q: Regarding the asset value of the quota share that each fisherman holds, can that be used as an asset to generate capital?

A: Yes it can. In the United Kingdom, that has been commonplace for quite a number of years. There is an assurance within the system of the government terminology that is based on a legitimate expectation. It has not been challenged. And a current review of the quota management structures in the United Kingdom is looking to firm that into a user-right level of assurance. It is not deemed as an ITQ as such. The government has been explicit that the asset is a national asset, and as a user you are accessing that asset through this legitimate expectation. The definition of how much of an asset you actually have has become quite well defined through quota allocations through the years. When we moved from a rolling track record system of calculating how much your quota share was to this more defined fixed quota allocation, the question of whether there was an asset there or not has been swept away. Each fisherman knows at the start of each year that they will receive that quota allocation.

- Q: You appear to have a very liberal system of buying and selling quota. As part of that, has any central brokerage system evolved to facilitate that kind of buying and selling?

A: There is no officially administered brokerage system. There are a number of operators who claim to provide that service, and there are quite a number of ex-skippers who saw a business opportunity to trade quota and quickly organized trading organizations. The main thrust of business in terms of quota interaction is between active fishermen who for a number of reasons will trade quota. Some are leaving the industry and they sell out. Some guys will trade as they move from fishing in one particular sector into another. For example, in Scotland there is a lucrative prawn fishery. Some guys who had whitefish



quota would sell whitefish quota to secure prawn quota. In the case of the pelagic industry, where the levels of investment are very high, the trade of quota has become lucrative.

- Q: You said a fisherman could go to a bank and take out a loan against this permit and use it as collateral where it actually has a property right in that sense. What that means to me is that if that fisherman fails in that business, the bank could foreclose on that loan and the bank could then be the holder of that permit. In the United States, we have experience with cap-and-trade systems. Under that regime anyone can trade. I could help a fisherman out and give a loan against a permit, and if that loan fails I then own that permit. Does that work in the United Kingdom? Can anyone buy a permit or is it limited to this small population of fishermen?

A: My guess is that theoretically it could be sold off to anyone in terms of the quota right. The allocation of your fishing license would be under government control, so it could be difficult for anyone to mess with the dynamics of the system. But theoretically businesses could own quota.

- Q: You describe a system in the Shetlands that went from 72 vessels to 37 vessels between 1982 to the present. Of the vessels that are left, how many of them are industry-controlled fishing vessels as opposed to privately owned fishing vessels?

A: All of our vessels are owned by sea-going crew. The common practice is for the shareholder structure to congregate all the crewmembers.

- Q: One of the things that is interesting about your case, in contrast to the Cape Cod Georges Bank sectors, is that in the whitefish sector, you seem to be managing multiple species rather than just having an allocation to one species. How do you manage effort across species to make sure that you do not exceed the TAC on any one species while pursuing another?

A: What we do is we spend a lot of time analyzing catch data and fishing patterns, and we take into account advice from fishermen in setting levels of quota to give out. We have certain species where there is limited quota available and we try and make these fisheries last for a 12-month period. I am not describing a system that is free of some of the faults that have been described here this morning such as discarding, although given our experience in the last two to three years and given the dramatic fleet reduction, the fleet has settled at a level that the quotas can match effort. We have a system where the guys can expect a 12-month limit on most of the stocks. The flexibility in the quota system within the United Kingdom enables me, throughout the year, to try and balance and fine tune particular quota stocks to suit the unexpected surges in fisheries. For example, in 2007, we exceeded our original offshore menhaden quota by about 300 percent, but we were able to draw from others who were not using North Sea menhaden by swapping stocks. When you have flexibility, you do not end up with the massive discard problems that you may have in a very rigid system.

- Q: One of the themes I have been hearing about for a while is how to get young blood into the industry. It sounds like under your system they must work their way in by buying part of the boat. Is that the way everyone over there does it?

A: It is pretty much that. You buy the boat to make your start. If you buy an old vessel, then the vessel is the least part of the cost, but when you buy a new vessel the boat is the most expensive part of the cost. The cost of quota has become quite high, and it makes access difficult. It is a limited-access opportunity restricted by the number of licenses available. The cost is going to be higher than ideally you would want it to be because of the limited access and the limited number of licenses available. But what we have tried to do in the Shetlands is to create opportunity for young men to try and start in the industry. We have bought quota on a communal basis inside the community through our organization and our local authority (government). This has allowed young guys to buy shares in existing vessels. But to be fair, in the last number of years with all of the difficulties in the whitefish sector, there has been not been a big draw. Just in these last couple of years, young guys want to come back into the industry. It is fair to assume the industry is on a fairly balanced footing again.

- Q: When a crewmember of a vessel decides to retire, does he maintain part ownership? Will they try and establish another person in his place?

A: Yes, in some cases you can retain part ownership. In the case of a large vessel, the shares are in the order of multi-millions. But the businesses of this size take quite a few years to build themselves up. It is difficult for them to sell part of the shares. These guys look at how best to keep it in the family. In smaller vessels you get guys going in and out. That can be disruptive at times. It can be one of the shortcomings of a shared ownership. We do have one or two vessels where there are fewer owners involved in them than there used to be.

- Q: How did the original allocation come about per boat?

A: It was based on a historic fishing performance records at the time (three years of fishing performance). In the United Kingdom, we are very good at keeping records. Government had endless records of fish landed. An average of those three years was used. Each year that was rolled up one year. When quota trade became more prevalent, it was an administrative nightmare trying to follow every transaction and change. Fixed allocations were introduced, and they reflected pretty much where people wanted to be.

- Q: You say it is fixed but isn't there still trading?

A: Yes, you can add to your share. There is a registry of quota units kept by government. Each year our organization receives a share based on the units of the members of the organization.

- Q: Are the people working on these boats now enjoying a better quality of life than they were prior to the allocations? Are they doing better economically?

A: Yes.

- Q: Have a lot of new jobs been created as a result of this sector allocation?

A: In the Shetland Islands there used to be a large fish processing industry. That reflected a lack of other job opportunities at the time, and it reflected the ability to rapidly catch fish, freeze fish, and sell them. Times have changed. The world has moved on. Those types of operations are no longer applicable. What we are now seeing as part of our electronic auctioning system is more fish being landed in the Shetlands. We envision from that process that fish processing will become more attractive again. What they are doing today is supplying a much higher quality product to the fresh fish market.

- Q: What happened to those other people who were on those other 50 fishing vessels? How were they absorbed into the local economy?

A: Most of them were employed in aquaculture. There was a development of the salmon farming sector a year ago that coincided with problems in traditional fisheries throughout Europe, along with movement into the public employment sector. The economy has been going strong.

- Q: How does your sector handle enforcement issues?

A: Enforcement is carried out by the government and the arrangements derive from the European agreement. The standards for enforcement are high. Landings are recorded by vessel logbook, by satellite monitoring, and by a number of other methods of information transfer. So we as an organization receive information directly from the fish market the second that the boat lands on how much quota he has caught and what he has taken from our overall allocation. We monitor all our fisheries on that constant basis so we have an analysis at any given time of where we stand in terms of our quota allocations. And we have to do it that way because we have to ensure that all of our members can enjoy the benefits of a quota system that can be directed towards policy management systems by our board of directors. If they decide for particular reasons to catch the entire quota by October, then that is fine and that is what we will do, but by and large we try and operate a 12-month fishery.

The quota management regime outside the quota control controlled regime is very much focused on issues that have been brought to light by conservation—decisions made by the European commission. Landings are all expected and doubled checked on the market. It is a very complete system of fishing control. That was not always the case.

- Q: Is there a third party that provides those tracking services?

A: The government uses an agency that is effectively an extension of the government. In Scotland, this is the Scotland Fisheries Protection Agency. They operate the aircraft for surveillance and they operate the onshore staff to monitor the landings. The information gathered by the agency is passed on to fishery departments, and they have the dialogue with industry.



E. Sector Allocation: Implementation Considerations

For fishermen considering forming a sector, there are legal considerations. In this session, the major findings of the Maine legal workshop on sectors entitled “Cooperative Harvesting Agreements for New England Groundfish Fisheries” were presented and discussed.

Sector Allocation as a Management Tool: Legal Considerations

Elizabeth Butler, Partner, Pierce, Atwood LLP, Portland, Maine

Overview of Maine Legal Workshop:

A sector agreements workshop entitled “Cooperative Harvesting Agreements Workshop for New England Groundfish Fisheries” was held in Maine from November 1-2, 2007. The workshop, funded by the National Sea Grant Law Center, was organized through a collaborative effort by the Maine Law Institute at the University of Maine School of Law, the Gulf of Maine Research Institute, and the Maine Chapter of the Ocean Conservancy, and was focused on working through pragmatic considerations involved in setting up a sector.

The objectives of the workshop were to:

- Analyze the legal issues and review the transactional tools available to implement sector agreements;
- Build capacity within the legal community to support this effort; and
- Build collaborative, ongoing relationships to develop effective solutions.

In forming sectors, the fishing community needs to be assured that the capacity is there in the legal community to understand the regulatory structures, to understand the controlling statutory and common law for antitrust, fishing, and contract sectors, and to produce the transactional documents on a cost-effective basis. The sector process also involves hearing from all the stakeholders beyond just the active fishing members, including the conservation groups, the communities, and the NGOs that have an interest, in order to fashion a sustainable solution.

At the Maine workshop, there was a lot of discussion about this, and a very discerning remark was made by one of the attorneys from the West Coast who had been through this sector allocation process. He relayed that if the solution that is arrived at is not, at the end of the day, accepted broadly by the key stakeholders, you do not have a sustainable solution and you have just assured yourself of another battle on another day. This is all about the collaborative process of moving forward and it is a wonderful process to watch working.

The presentations at the workshop began with a summary of the New England fishing sector economic and regulatory status, and time was spent educating the legal community on the controlling regulatory and economic factors. Information on two case studies on sector agreement were also presented: 1) West Coast pollack (Joe Sullivan, Seattle, WA); and 2) Georges Bank Cod Hook Sector (Eric Brazer), as well as an overview of the New Zealand Cooperative Harvesting Programs (Mike Arbuckle). These presentations were followed by panel discussions and breakout groups of fishermen, business managers, attorneys, bankers, and regulators focused on a review of the process and issues involved in developing the legal entity and transactional documents to implement a sector agreement including a review of the specific legal, ethical, and alternative dispute resolution issues raised. Proceedings of the workshop can be found on line at www.mli.usm.maine.edu.

Key findings of the workshop:

The three major areas legal counsels need to work with the fishermen on are: 1) regulatory compliance; 2) legal entity establishment; and 3) development of a membership agreement.

In terms of regulatory compliance, there is a need to assure that whatever sector agreement is developed is compliant with all of the regulatory considerations. This requires starting early enough to be able to assess the full scope of the regulatory compliance for both the fishing and the antitrust regulations. Operating procedures have to be submitted in time for NMFS to give a response, and antitrust regulators also have to have enough time to review the proposal and issue an approval. This process allows for the continuous-improvement discussion to occur and that is now starting to take place. The regulators are listening to the fishermen’s concerns about what needs to be adjusted, and fishermen need to be listening carefully to the regulators about what will fly and what will not fly. All of that is distilled with counsel into the architecture of the transaction. This is the time that you all need to be talking to your lawyers and your accountants. The legal entity that is formed must be in compliance with fisheries, antitrust, and tax laws.

The membership agreement needs to be based on a consensus about membership terms, and needs to start and end with some flexibility. Workshop participants came away with the strong impression that it might be a good thing to have a community consensus around a one-year pilot type of approach. The advice was to keep it simple in the first generation of agreements and see if it works. You learn a lot in the first year.

Regulatory compliance:

Ongoing communication is essential. There are a lot of variables that have to be tweaked as the process goes forward. Legal counsel will be careful to make sure all the requirements by NMFS regarding sector agreements are covered. Regardless of whether a sector agreement is a LAPP or not, a sector is likely to have to meet requirements for a LAPP. Good governance requirements of the councils will likely lead them to impose those requirements.

In New England, multispecies groundfish sectors raise complex quota and allocation issues. It should be emphasized that the western experience and the Cape Cod example involve single-species management versus multispecies management, and cannot be used as simple templates to pick up and apply.

With antitrust, there is no simple solution. Sector agreements need to be presented to the Department of Justice (DOJ) for review. The DOJ has a business-review procedure through which they may respond saying, “based on everything presented we do not plan on enforcing on you.”

There is a general prohibition under U.S. law that prohibits unreasonable restraint of trade. The Sherman Act prohibits contracts that unreasonably restrain trade, and includes criminal penalties, treble civil damages, and coverage of attorneys’ fees. The DOJ considers competitor agreements allocating access to raw materials used for production as per se violations, unless there is an exemption. The DOJ says a group of fishers that goes out and strikes a deal to limit access to the harvest would be a per se violation of the antitrust law.

But the Fishermen’s Cooperative Marketing Act (1934) provides an exemption for persons engaged in the fishing industry collectively catching, producing, processing, or marketing their fish, although the courts have raised doubts about whether a harvesting sector will qualify for FCMA protection if there is any vertically integrated processing capacity. This may require reliance upon a “rule of reason” (backdoor) exemption to show a pro-competitive impact of the agreement. If you can demonstrate that there is a pro-competitive impact for this rationalization of effort, then you may qualify for an exemption. The important point is that if you are including catcher-processors, there is a real question about how you will form your sector and how it will operate. It is recommended in a first generation sector agreement to keep it simple, with just harvesters doing harvesting only. Do not include marketing or distribution activities in the original sector agreement or the legal entity that implements the sector agreement.

The western sectors precedent used the DOJ “Business Review Procedure.” After a review of the facts presented, the DOJ confirms it does not plan to prosecute. The bottom line is that time must be allowed for the DOJ/state antitrust review. Antitrust rules apply throughout the sector lifecycle, and vertically integrated producers make agreements more problematic. Both target species and incidental allocations must be limited and fully harvested.

Legal entity establishment:

The strong preference of fishermen in these early agreements is for a narrowly functioning organization that will simply allow them to take in the allocation and output the sub-allocations among the members. They do not want legal complexities that will limit distribution options at this stage. It is likely that the easterners will do what the westerners have done and choose a not-for-profit entity, although in theory the choice of entity could be a for-profit, a corporation, or an LLP.

State law controls formulation issues. Cooperative laws may have restrictions on governance and distributors. In the west, the entities used are non-stock, non-profit corporations, and they are not “cooperatives” under state law. (There is confusion though, because they use the term cooperatives and not sectors.)

There are state and federal statutory tax issues. Sectors must apply for income-tax-exempt status. In the western states, the IRS code 501(C)(5) “aquaculture org” or (6) “trade association” is used.

In the first generation of a sector agreement, simplicity rules. The legal entity created should ensure that there are flexible governance/administration provisions to respond to a highly variable regulatory environment. It is advised to segment any buying, selling, and distribution functions into a separate entity.

The formation of the legal entity needs to include transactional documents or the core documents that specify how the sector will be carried out. These include articles of incorporation to be filed with the secretary of state (what the entity is, where it is located, list of members on its board of directors); bylaws (how the entity will

be governed, how decisions will be made, member eligibility and voting rights); and a membership agreement (contract among members specifying how fish will be divided, and how violations will be tracked and enforced).

Centralized management is the most efficient. If a consensus vote is needed to change every rule, it may be difficult to get everyone together quickly to respond to potential quota issues, trading issues, or enforcement issues. But centralized management must be accountable to other members.

Membership agreements:

The Georges Bank Cod Hook Sector and Pollack agreements offer examples of membership agreements. They include information on membership, allocation of quotas, administration (how the organization will be run), catch monitoring and verification methods, enforcement (how the organization will respond both internally and externally to enforcement issues), indemnification of sector members by offending sector member, term and termination, and controlling law/change in law provisions.

Regarding membership, the key issues are:

- Who can be a member?
- How will the decision be made about who can join?
- What will members be required to contribute?
- What restrictions will apply to a sector member?
- How will voluntary and involuntary terminations be handled?

Membership agreements need to address how significant upfront costs associated with legal and environmental assessment preparation work will be covered, along with capital expenses. Annual dues may have to be agreed upon. Small groups with similar interests, located in the same area, find it easier to agree on financial issues. There is a need to have a continuing capacity to deal and negotiate with one another. Strong animosities or difficult personalities will make it harder to function.

The membership agreement also deals with the allocation of quotas. The sector obtains an aggregate sector allocation based on an aggregate of member quotas. The sector in turn sub-allocates the sector allocation among members. The membership agreement needs to address what happens when someone sells a boat and the reserve quota needs to be divided. This may involve the right of first refusal in the event of permit transfers. It must also address how quota might be traded among members, how multiple participating vessels by same owner will be handled, and how to respond to special access quota changes.

Membership agreements also determine how decisions are made within the sector. This may involve delineating what decisions that will be made by the board, sector manager, or group by consensus. It is recommended that the decision procedures enable efficient, swift enforcement, and that the sector hire a strong sector manager.

The greatest legal concern involves uncontrolled risk associated with joint/several liability. This can be handled with cross indemnification agreements, and controlled with consensus requirement for admission. There may be jurisdiction issues connected with multi-state members.

Sector management may offer a means of getting to a situation where conservative management measures can be reduced so catch monitoring and verification is important. In the West, this is being accomplished through third-party services. This offers near-real-time aggregation, and builds regulator confidence in accuracy. It adds to costs and may be cost prohibitive for small vessels, but the long-term payback may be the opening of doors for accessing the quota reserve.

In the area of enforcement, there is a need for real-time reporting and swift action. A sector infractions committee can have the power to address violations, but multi-port, multi-state membership is problematic. Membership agreements need to have measures to liquidate damages for non-compliance such as overharvesting and incidental bycatch, and mandates to encourage self-reporting. Sector managers should be empowered to seek injunction to avoid overruns, and authorized to transfer quotas between sectors to address problems.

Indemnification is the strongest tactic a group has for dealing with a noncompliant member. An offending member must have the capacity to back up the promise, and there need to be cross agreements to enable the sector to collect and make sector members whole. In other words, if one member causes the sector to be in violation, the offending member will have the liquidity to pay up and make the other members whole. Small, illiquid members can be problematic.

Regarding termination, in the first year, it should be looked at as a pilot program. There is a need to allow for unwinding in a reasonable time, and for a lack of regulatory approval in time. Later-generation agreements can address capital investments to support upgrades in compliance. Monitoring and enforcement need longer-term agreements, and there needs to be assurance of a stable regulatory regime.

Issues to discuss in forming a sector:

Issues to discuss with regulators in forming a sector include:

- Joint and several liability – Is a NMFS Enforcement Policy possible? Does an Environmental Protection Agency (EPA) Environmental Enforcement Policy apply? If a sector demonstrates due diligence in agreement terms and enforcement, will NMFS pursue an individual and not the whole sector?
- Allowing inter-sector trades of quota
- Need for ADR/binding arbitration
- Problems of multiparty representation
- Can quota reserves be used as incentive for real-time reporting/other upgrades?



Questions and Comments

- Q: Fishermen are asking the NMFS for their histories. Some landings are over-reported or underreported. How will that affect the sector discussion? How do you address the issue of consolidation by one member that happens to be more liquid if a sector decides that history or landings are transferable within the sector?

A: Regarding accuracy of catch reporting, my personal observation is there has to be an accurate catch history for the necessary allocation into the sector to do a sector agreement. Without that there is little incentive for the fishing community to buy into this process.

Intra- and inter-sector trading is an economic decision for the fishermen. There is the need to get some incentive into the process to do real-time monitoring, to reduce your costs of compliance, and to better access that quota reserve now made for regulatory discards. These three points should be in this agreement and worked through with NMFS.

- Comment: There is going to be an issue in this area with those who have leased out their Days at Sea. Small operators did not know that when they did that they gave their history away to someone else.

A: This is the social engineering that is built into fishery and biological management. Those output controls will have to be reevaluated as these allocations are made. I can only point out to you that the regulatory compliance issue has got to be resolved in a TAC allocation, but if within a sector you have a group of fishermen who share this concern and interest, your sector agreement can be drafted to say, “We are going to recognize your history of Days at Sea and your use of Days at Sea in how we internally allocate our sector’s allocation.” That could be one of the things taken into account. But at the end of the day you need to find that common identity, interest, purpose in your sector; otherwise you will fight all day long over allocations.

- Comment: The New England Fishery Management Council is meeting on January 24, 2008, to decide on an allocation approach. The sectors may not be able to do much about the initial allocation.

A: If the sector agreement functions under a market environment, it relieves the pressure by creating a market-based mechanism to allow for reentry into the fishery. This is something that we haven’t talked about a great deal. There is the question of new entry and also of shifting capacity within the community. If you create a market-based system to allow that shifting to occur, the market will set the price. It is a way of moving forward and allowing some flexibility as you go into the future. Fishermen are supreme traders. A sector system may offer some support for that to occur.

In this session, representatives of the Northeast Enforcement Division and the U.S. Coast Guard were asked to comment on the potential impacts of a sector allocation approach in New England's groundfish fishery from an enforcement perspective.

Sector Allocation as a Management Tool: Enforcement Considerations

Christopher McCarron, Northeast Enforcement Division, NMFS (Based in New Bedford, Mass., with duty stations in Boston and Gloucester, Mass.)

Question: From the Northeast Enforcement Division's perspective, would a sector allocation approach to management be easier or harder to enforce?

It is a very difficult thing to put a response to. Right now, given how management is looking at it, there would possibly be both sector boats and non-sector boats. The easiest way for me to explain this is what currently is in effect and what sectors may do.

Right now through current management measures, there are effort reductions through Days at Sea as monitored through the Vessel Monitoring System (VMS). There is some interaction with law enforcement correcting problems or violations. Closed areas are pretty much automated now through VMS, and supplemented with Coast Guard resources as well. And there are possession limits. Possession limits went into effect with the Joint Enforcement Agreements (JEA) agreements with the states and the possession limits now enforced through random boardings by an agent or a state officer. The randomness helps with the enforcement. Nobody knows when an enforcement agent is going to show up or if an enforcement officer is going to monitor that landing.

What sectors do to this whole picture involves sectors being allocated a piece of the pie or a portion of the TAC. The monitoring of the landings is most important, and sectors will require a higher level of monitoring and tracking. That is important to the sector members and the non-sector members for two reasons: 1) If the amount of critical species of concern (those with low TACs) are not monitored correctly, or if the landings exceed what should be landed, future management decisions will cut back landings; and 2) for those landings that exceeded those for critical species, it can give sector or non-sector vessels a bit of a competitive business edge. If you are given a specific piece of pie that you can land or the sector is allowed to take, and another sector is taking more or something happens, you are going to be affected in the future.

Probably right now there are about 15 agents that will be most affected by this, and these are the agents in the New Bedford office extending all the way up to Maine. As the level of complexity of the regulations increases, the level of enforcement decreases, i.e., if there are a lot of exemptions or the regulations are very difficult to understand, not only are they hard for the participants to follow, but they are hard for the enforcement agents to enforce. Sectors may improve that. As long as sectors stay within their TAC and within certain confines of the regulations, then certain complexities are reduced.

But what changes is that there are more resources, e.g., labor, that are needed to monitor those landings. That comes in quite a few different ways. I heard mentioned the weigh master program would probably be the most preferred method, where there is a third party entity that monitors landings, and it has to occur for sector members and non-sector members. The industry is probably turning to that point.

The second thing to consider is that there would need to be landing windows. It would be nice to say that the weighmasters could work 24/7 but there has to be some compromise given how many weighmasters there might be and their availabilities to cover remote ports and different hours.

There may also need to be such things as prior notice of landings specifying when sector boats or non-sector boats are going to land. This would be much like the call-in system but probably something that can be done through VMS. Prior notice of fishermen landing have to be given in order to allow the weighmasters an opportunity to provide coverage.

Also certain regulatory changes would have to happen that would allow my office and agents to do better audits of sectors, vessels, and dealers. That would require more accountability on the part of everybody concerning reporting, whether it is through VMS, logbooks, or through sector managers.

The last thing and perhaps the most important would concern self-policing amongst the sectors. If you have a piece of the pie that you invested in, and someone in your sector or another has a problem, it will hurt you. The industry needs to change so they can do some amount of self-policing when issues happen in a sector or when issues happen in another sector. The industry needs to bring it to my office's attention so we can correct that, because otherwise we go right back to the original problem where people have a competitive business edge, or there will potentially be management measures that will cut down landings quite a bit.

Question: Would the Northeast Enforcement Division have the resources necessary to enforce a sector-allocation approach?

Would law enforcement be ready to go tomorrow to enforce sectors given that we may need weighmasters and quite a few regulatory changes? Probably not. Weighmasters would have to be trained much like what was involved in the observer program. I would anticipate it to be similar to the observer program where at first it starts out small and then increases if it is determined that sectors are going to stay. The biggest question would be what level do landings need to be covered by weigh masters, and I do not have an answer for that.

Lt. Anthony Kenne, U.S. Coast Guard (Based out of Boston, Mass., and responsible for all federal enforcement activities from northern New Jersey through Maine.)

Question: From the Coast Guard's perspective, would a move to sector allocation and away from the Days at Sea approach be easier or harder to enforce?

With regard to Coast Guard enforcement of sectors, the big thing for us is that we rely extensively on good communication with NMFS to track the landings and the total amount of quotas landed. Because we are on the water, we do not necessarily have all the numbers right in front of us. So it takes quite a bit of communication between our two agencies to make sure that the boats we are boarding on the water have catch amounts under the TAC for the sector and are following those rules. That is something that will require additional communications from our perspective and that is not necessarily all there right now. It will require more work on that level.

The second factor would be the training of our boarding teams. Right now they are trained to look at gear and Days at Sea allocations. A lot of that is tracked through the VMS system, but changing over from daily trip limits to a sector approach would require us to look at what the sector started with for the year, what the boat has landed, and what the sector has landed. That would require some additional training for our crews but it is nothing that we have not dealt with in other areas. We have dealt with this on the West Coast through the community development quota system and where there are the IFQs. So it would just be a little bit different for the New England side of things.

It was brought up that the community-development quota system in Alaska and those types of things were really looking at a single fishery. We would be looking at a multi-fishery quota system here so that does add to the complexity of our boarding. You could expect to have boarding officers on your bridge for a little longer because they have to go through and tally all those species and look through your catch logs and landings logs and make sure all of those are in compliance. It is a lot more paperwork to do.

Regardless of whether we are looking at sectors or Days at Sea, it still requires a significant amount of at-sea enforcement. We are still looking at all the gears to make sure they are in compliance with all the regulations wherever you are fishing. We are still looking at closed areas that are not monitored by any other means than by at-sea enforcement or aircraft coverage. We are still looking at interactions with other species and discards to see what is going on. Right now, VMS is a partial solution for some of that, but not every vessel out there is on VMS, so not every vessel is tracked by that system.

Moving to sectors requires some changes for the Coast Guard. In the end, whether it will be more difficult or easier is just a function of the way the Coast Guard works. We are flexible in our enforcement—we always have been. It would require some additional training and some time to get up to speed on how those regulations affect things, but as long as there is some consistency in things so we can look at different monitoring requirements and get our people adjusted to those changes, it is not a big stretch from what we have been doing in the past. It is largely a neutral prospect for the Coast Guard in terms of which is easier and which is more difficult. It is just a change. It would take a little bit of training time to get everyone up to speed on how that works.

Question: Would a move to sector allocation help ease some of the safety-at-sea concerns connected with the current race to fish?

It is a safety-neutral factor for us. The safety of the vessel is largely a factor of the master and the crew. It is up to them to decide when to go out and when to fish, regardless of whether it is under Days at Sea or sectors. Sectors may make more economic sense for some because they are not limited by the Days at Sea allocation or that trip limit, but as far as safety, it is a neutral factor for the Coast Guard. Under both approaches, we rely on the masters of those vessels to have the best interest of their crew in mind.

Questions and Comments



- Q: Once we go to sectors, some of the fleet will be in sectors and some will be in the general pool. Regulatory closed areas become irrelevant for sectors and will probably be eliminated. Some of the regulatory closed areas may involve habitat closed areas and some may not, but we will have this dual track where we will have some of the fleet subject to closed areas and some it not. From an enforcement standpoint, how big of a nightmare is that?

A: (NMFS) When you allow exemptions, it makes enforcement more complex, and the level of enforcement decreases. However, if we were not now on a VMS situation, it just couldn't happen. VMS has changed things quite a bit. Where boats will utilize that are with sectors activity codes that allow them to fish in closed areas. You bring up a good point about where there are habitat areas that are so important that nobody will be allowed to fish in them based on the council's recommendations and guidelines. We will see a percentage just as we see now with the exemptions in closed areas where boats will enter and exit areas where they are not allowed to fish, resulting in problems. Sector members may need to consider what happens if they are asking to fish in a portion of a closed area, realizing that if a member of their sector fishes in a restricted part of a closed area, that may have an effect on the whole sector. Regarding the whole joint/several liability argument with sectors and individuals, I don't have an answer.

A: (U.S. Coast Guard) As far as the Coast Guard is concerned, it would require VMS. You cannot have a non-VMS boat working in a segment of the closed area because then we cannot enforce anything. Already we have boats that are going to go in there that may make it difficult if they are not on VMS. That is why it still requires a lot of at-sea enforcement from the Coast Guard to monitor boats. We have flights going up every day looking for incursions in the closed areas. Right now you are looking at the five multispecies closed areas and the restricted gear areas, the harbor porpoise take-reduction plan areas, and the dynamic area management zones. The schemes are very complex and the more layers you add to the complexity, the more it is going to require VMS with additional codes. That would enable us to say, "Here are the boats that are allowed to be in there based on the codes and based on what they are fishing for." So when we send a flight over we can determine what boats are supposed to be there.

- Q: Would your recommendation be that VMS would be required for any sector allowed to go into a regulatory closed area?

A: (U.S. Coast Guard) That would allow us to enforce the regulations in those areas. Right now, in our closed areas, we have several fisheries that are not on VMS that are allowed to be in there. The Coast Guard probably receives three or four calls a week concerning "this fishing boat is here in the middle of this closed area—what do we do?" Our question is then, "What are they fishing for?" because we do allow lobster boats in there, and we do allow squid boats on some of the fringes. We have different boats that are in those areas that are allowed to be there. We need codes that say, "This is what I am fishing for and here is where I am." Then the Coast Guard can go back and see that these boats are there but they are on VMS, and as long as they are fishing for what they say they are fishing for, they are good to go. We just need to make sure we enforce those total catch limits or document their quotas or whatever the case may be at that point. That VMS requirement would be very important to be able to track where they are and what they are doing, and would allow the Coast Guard to more accurately enforce those regulations as they become more complex.

- Q: What practice do you envision setting up so the state enforcement agents know what sector rules a boat is under when they board a boat in a harbor? Does it change how enforcement is done?

A: (NMFS) It is a communication issue. Right now there is one set of rules for procession limits, so when a state officer boards a boat we will get a call asking, "What are they allowed? What can happen?" It is going to require more communication between my office and our state counterparts. Where a state officer boards a boat that is in a sector, and the rest of the fleet is allowed 800 pounds per day and the sector boat has 2,000 pounds, the questions will be: 1) What is the sector allowed? 2) Is this boat an active sector participant? It is just another level of checks that we will have to go through. Until the boat is boarded, you do not know what that boat is doing, and it requires a level of checking after the fact and during the boarding.

- Q: Can the experience for monitoring boats in sectors on the West Coast be applied to boats on the East Coast?

A: (U.S. Coast Guard) A lot of what I dealt with, whether it was an individual quota or a community quota, was to tally everything they had on board at the time against all the catch logs. That is how we monitored a lot of it. I dealt with the Dungeness crab industry in Washington and Oregon as well as some of the tuna fisheries. Most of it was quota that we dealt with. It was a matter of standing on the bridge and going through all of the catch logs and all of the entries, and calling back to our district office to get what had been landed so far for the year and subtracting. The boardings out there are a lot bigger. In Alaska, we were doing a lot of catch/processors that have 300- to 400-foot boats. We could be on a boat for four hours doing a boarding compared to the average time here, which is 45 minutes to an hour. There is a lot of difference when we get into those factors. Dungeness crab was pretty easy, so long as they were in the right areas and had the correct gear (similar to what we have for lobster here). I dealt with the international fisheries with the tuna and the Canadian boats coming down—what they could land and where they could land and things like that.

- Q: Are you saying there are no trip limits out there, just quota?

A: (U.S. Coast Guard) For what I dealt with, but that is not all of them.

A: (NMFS) Alaska went to ITQ several years ago with halibut and sablefish. In order for my office to prepare for that, they hired between 20-25 enforcement officers to monitor landings. What facilitated that in Alaska was that there are not as many ports as there are here in the Northeast, and they require all boats to do a prior notice of landings. Six hours before they hit the dock they have to say what port they were coming in to and how much they had on board. A computer printout would indicate what their ITQ was and what they had harvested. This was compared to what they had on board and sometimes problems were identified right there. If a boat had 20,000 pounds of quota left but they had 25,000 pounds on board, that was a big problem. Obviously they were over their quota. Here one of the things we put forth in the weigh master program where it is no longer a trip limit, is for a boat under sectors to be able to come in with anything as long as they are underneath the sector allocation. Somehow that total amount of sector landing needs to be tracked to some level of certainty so a TAC is not being exceeded.

- Q: To follow up on the overlap between federal and state enforcement, you said that you had 15 enforcement officers in New England that you would be counting on right now and the Coast Guard has indicated that they would be relying heavily on VMS. In regards to the states, if the state is reluctant to sign on board with this because of a lack of resources, what else is going to be needed? You indicated the weighmaster program and VMS, but the reality is resources are going to be limited.

A: (NMFS) Everyone has to recognize that there are 15 agents in the area we are talking about for sectors. Those 15 agents are also responsible for about 17 other management plans that are in effect such as scup, scallops, and lobster, so I do not want anyone to come away with thinking that those 15 people will specifically be doing sector or groundfish enforcement. And the same goes for the states. Under the joint enforcement agreements, all states, just like the federal government, have budget concerns, and labor is being cut back. All the states in New England are also charged with enforcing hunting and game laws. Concerning the accountability of landings for sectors, there are also going to have to be some other programs instituted such as a weigh master program and some regulatory changes, to try and help with the labor issues and the manpower coverage issues.

- Comment: I just wanted to point out that there are limitations as we go forward with sectors. Obviously Rhode Island is facing a lot of budget cuts as is every other state, and our law enforcement people are doing multiple enforcement tasks.
- Q: What enforcement tools are utilized in the halibut fishery sector on the West Coast? What does the NMFS use to monitor catches?

A: (NMFS) In Alaska it was a requirement that ITQ vessels sell to permitted dealers because that quota had to be tracked. A federally permitted boat has to sell to a federally permitted dealer.

- Q: In a charter head boat business, where the catch is distributed to the clients, how does that get tracked?

A: (NMFS) By random boardings. There were possession limits—three to four fish per person on the boat. I am not sure what the charter boats and recreational boats were required to do for reporting.

- Q: Sector members are going to have a letter of authorization from NMFS that states they are in the sector and these are the rules they are fishing under. Wouldn't that facilitate things for the boarding officer, if the captain has to be able to produce this letter of authorization?

A: (NMFS) It facilitates the boarding whether it is at sea or dockside when somebody produces a letter. There are other issues such as the Paperwork Reduction Act. Someone with VMS will say, "Why do I need a letter when I am declared as a sector boat?" I would formally encourage that the letter option be presented, but anything we do in law enforcement has to be checked up on. There are many boardings where we see an old yellowtail exemption letter or monkfish letter or what not, and it is not until after the boarding, through checks and balances, that it comes to anyone's attention. Is this boat in a sector? Yes, but some sectors may use up certain amounts of TAC, so there will be prohibited species that will be on the boat at that time.

- Q: The sector is going to have to hire a sector manager who is keeping NMFS informed. The status of each species allocation to that sector and the progress the sector members are making towards achieving that is likely to be on a legal basis. Should the sector managers be reporting that to the Coast Guard as well as to NMFS?

A: (NMFS) I think it is a matter of communication between the Coast Guard and my office. One of the regulatory changes that would need to happen is that sector managers will have to be accountable to law enforcement much like a dealer is now. Law enforcement will need one point of contact in a sector to get a hold of the multiple sector boats when there are problems, or when quotas are reached within a sector and there is a need to shut down. Regarding the sector landings, the sector managers will be responsible for maintaining a lot of those records much like dealers are now.

- Q: With the sectors that you are dealing with now (Georges Bank) you do not require weighmasters and you do not require pre-landing reporting, right?

A: No, but it is now very heavily monitored through VMS and landings that occur. With the latest sector proposals, there would be 19 different sectors or more. If you have one sector that uses a test pilot, we monitor that very closely through the mechanisms in place. Can that happen if we are at 19 sectors? No. And that is the problem. The ability of my office to contact the sector manager has facilitated monitoring the Hook Sector when there have been problems. When the sector has had self-reporting issues, they contact our office.

- Q: With multispecies, as you approach the trigger points, how does the communication go between the Coast Guard and enforcement and the boats?

A: (NMFS) There has to be in any sector some kind of trigger. When 65 to 75 percent of the sector allocation is hit, somebody has to be notified. Once a sector closes, a VMS mechanism can be used to insure that a boat in that sector cannot go fishing. It boils down to communication between the sectors, Sustainable Fisheries, and my office to get that message out as best we can.

- Q: We work in the mackerel and herring fishery. We have the VMS and we do the six-hour call in. Is there a problem with the ongoing dealer reporting system that it would require the herring sector to rely on another method of figuring out what we are landing, e.g., the weighmaster? What is wrong with the current reporting system that would require something else being used? How would a weigh master system work in the herring fishery where there are few landing ports? What are the costs? Who has to be trained? Why do we need something other than what we already have when we are under a hard TAC and have been for a number of years?

A: (NMFS) Is the current system broken? No. Are there problems with enforcement issues with

dealers? Yes, there have been. There have been concealed landings or whatnot. Under a TAC system where the sector has a piece of the pie, I think it is more important that landings be monitored as opposed to where we have possession limits now. The randomness of a landing or a boarding done by enforcement keeps things in compliance. If we get a complaint that a boat is landing more than they should be, we focus resources. We make it happen when it needs to happen. With the sectors it is the whole landing that is attributed to their piece of the pie. With sectors or ITQs, the dockside monitoring needs to increase. It is not effort reduction. There needs to be some increase as it becomes a dockside fishery as far as the landings as opposed to closed areas or effort reductions. A change happens. Right now our closed areas are monitored by VMS. For most fishing vessels, the VMS is reporting their hourly positions. It is the landing as a whole that is the most important.

- Q: How is the weigh master system going to work? If we want to go to the weigh master system tomorrow, and some of our conservation partners have called for this, how does it work? What does it mean? How do you set it up?

A: (NMFS) That is in the developmental stages. How it will be done and how it will be funded are all real concerns. There is going to have to be some third party weigh master program that has to be trained just like the observer program so reporting is more accurate. Training has to happen.

- Comment: This is supposed to make things simpler, not more complex. We do not understand why we need to have some whole other system to enforce the TAC, which in our fishery has been around for about 10 years.

This session addressed the question of what some of the potential benefits and costs of sector allocation might be for the recreational fishing community, and, in particular, how the New England recreational fishing community might be included in a sector allocation approach.

Integrating Recreational Fisheries into Sector Allocation and Limited Access Privilege Programs

Robert Johnston, Associate Professor, University of Connecticut Department of Agricultural and Resource Economics and Associate Director, Connecticut Sea Grant College Program

Overview:

This presentation focuses on two issues: 1) why you would want to try and integrate recreational fishing into limited access or sector-based fisheries management; and 2) how you might do it. There is a lot of promise associated with doing it, but also a lot of challenges.

Background information:

Although historically recreational fisheries have been perceived as having minimal impacts on U.S. marine fish stocks, it is now clear that the recreational sector can have significant impacts. The economic value of recreational fisheries is threatened by regulatory trends towards shorter seasons, smaller bag limits, and more restrictive size limits. Weak control of recreational fisheries (where they have significant impacts on mortality) can have long-term effects on both the recreational and commercial sectors.

Shortcomings of command and control have led managers to consider alternatives including LAPPs and sector allocation. These approaches often focus on the commercial sector. Many fisheries, however, support a substantial commercial and recreational presence. In such cases, omissions of the recreational sector from limited access or sector-allocation programs can have negative consequences.

Why consider integrating the recreational sector into sector allocation or limited access management? Integration can promote maximum economic benefits in combined recreational-commercial fisheries. Traditional management often leads to weak control over recreational fishing mortality and this has the potential to threaten sustainability.

Weak control over recreational fishing mortality can also destabilize limited access or sector allocation approaches in the commercial sector.

Traditional approaches can encourage ongoing conflict between recreational and commercial sectors. Sector allocation or limited access approaches may give the commercial sector a greater perceived “right” to the fishery, which may be used to lobby for stricter regulation of recreational fisheries (smaller bag limits and smaller size limits).

The current tendency to impose homogeneous recreational fishing regulations over large and heterogeneous angler groups can lead to dissatisfaction and loss of economic value.

Examples of recreational sectors and actual or planned LAPPS:

In the Alaska halibut fishery, weak control over recreational fishing mortality contributed to claims of “open-ended reallocation” of the harvest from the commercial to the recreational sector, and complaints that weak recreational management would devalue IFQ shares. In the Gulf of Mexico red snapper fishery, there has been dissatisfaction among recreational anglers and a proposed commercial IFQ, leading to calls to integrate the recreational sector into a rights-based approach. In Texas, in particular, anglers do not think open and closed seasons are well suitable for their area and want to do something more tailored. The graph below shows the changes to recreational red snapper size limits, bag limits, season length, and allocation over time.

Trends in the recreational reef fish fishery in the Gulf of Mexico show evidence that the current command and control management is inadequate. There have been progressively restrictive management measures (bag and size limits, seasonal closures), with little sign that effective harvest control has been achieved. Particular pressures are evident for high-value target species such as red snapper and red grouper. The red snapper recreational TAC is routinely violated, despite increasingly restrictive management.

In these and other cases, the recreational fishery accounts for a substantial part of fishing mortality. Weak control over mortality threatens sustainability and has resulted in pattern of more restrictive recreational regulation. It also indirectly affects actual or potential commercial fishery allocations calculated as a percentage of a TAC. Homogeneous and increasingly restrictive management within each recreational fishery has contributed to angler dissatisfaction.

Challenges to integration:

Although there are many reasons to consider integration of the recreational sector into sector allocation or LAPPS, there are also many complications and challenges. These include difficulties associated with integrating large numbers of heterogeneous anglers within a sector, coordinating the harvest limits among anglers (charter head boats may be more easily coordinated), and carrying out monitoring, enforcement, and voluntary compliance. There are also philosophical concerns with “allocating” rights to recreational fishing, in that recreational fishing is not a business, and anglers have a tradition of being spontaneous about their activity, and about ensuring opportunity to diverse angler groups.

In considering how to integrate the sport fishermen, the composition of the recreational fishery matters. Organized charter or head-boat business entities may be more easily integrated into a management approach that allocates harvests to predefined sectors. Individual anglers are more difficult to integrate into sector allocation. Some of the concerns that would need to be addressed include:

- How would a myriad of individual anglers be organized and monitored such that a sector allocation could function appropriately?
- How can sector allocation be incorporated within sport fishing traditions that often allow more-or-less spontaneous fishing within open seasons, subject only to bag and size limits?
- Does sector allocation correspond to sport fishing philosophy? Would it be supported by anglers?
- How would allocated fishing rights be distributed among heterogeneous anglers or angler groups within a defined sector?
- How would equal access (to different angler groups) be ensured?

Changes in recreational red snapper size limits, bag limits, season length, and allocation.

Year	Allocation/Quota	Harvest	Size Limit (inches TL)	Daily Bag Limit (No. of fish)	Season Length (days)
1984			13		365
1990		1.24	13	7	365
1991	1.96	1.94	13	7	365
1992	1.96	3.03	13	7	365
1993	2.94	5.29	13	7	365
1994	2.94	4.26	14	7	365
1995	2.94	3.25	15	5	365
1996	4.47	3.57	15	5	365
1997	4.47	5.41	15	5	330
1998	4.47	5.76	15	5	272
1999	4.47	5.51	15 & 18	4	240
2000	4.47	3.92	16	4	188
2001	4.47	4.52	16	4	194
2002	4.47	5.32	16	4	194
2003	4.47	4.58	16	4	194

When does integration make sense?

Given these advantages and challenges, integration of the recreational fishery into sector allocation makes most sense for recreational fisheries in which recreational mortality comprises a large proportion of total fishing mortality, a significant proportion of harvest is taken through business entities such as charter and head boats, and some prior organizational structure (e.g., recreational angler association) is present. It also makes most sense when harvests are landed in such a way that monitoring and enforcement are at least minimally possible (small number of docks), and current management has led to weak control over mortality and/or angler dissatisfaction with the current status quo. Integrating the recreational fishery into sector allocation requires coordination and has to be something anglers want to do.

How could integration of the recreational sector be accomplished?

Some of the key requirements of sector allocation in recreational fisheries include the ability to maintain an organizational structure, and to maintain recreational harvests within allocated limits (hard harvest limits). It also requires a means to effectively and fairly allocate harvests to anglers within a recreational sector, and this may be difficult because there is no harvest history to look at unless you are a charter boat business. There is also the need to allow for effective monitoring and enforcement, and to promote voluntary compliance and angler support.

Options for integration into limited access or sector allocation include LAPPs for the charter/head-boat sectors (this has been proposed for the Alaska halibut fishery), Angling Management Organizations (AMOs) as proposed by Sutinen and Johnston (2003), and allocation methods within (or among) recreational sectors using fish tags. Regarding LAPPs for a charter sector, this has many advantages but faces many of the same challenges and issues as the implementation of LAPPs in the commercial sector. Implementation of this concept in the Alaska halibut fishery has faced a variety of hurdles. One of the problems is that it excludes individual recreational anglers, and technically it is not a sector allocation. (It would be a charter IFQ.)

AMOs, as conceived by Sutinen and Johnston (2003), would be large, locally organized groups of recreational anglers who would jointly manage a recreational fishery in a specific area. AMOs would be established in coordination with regional fishery management councils, and would provide anglers the ability to cooperatively manage their own fisheries, within limits set by regulators. AMOs would be designed to function within LAPP or sector-allocation programs, and would act as private sector entities comprised of recreational fishermen and others who elect a governing board. They would be assigned a fixed share of the recreational quota, given responsibility to manage the quota share, be region and species specific, and subject to oversight by fishery managers.

Establishment of AMOs would represent a substantial change to recreational management and in many ways be parallel to self-managing sectors in the commercial fishery or community development quota programs. One might only want to go through this process if there was dissatisfaction with the current system and the recreational component is a significant factor in the overall fishery.

AMOs could be a promising way to integrate the recreational sector into sector allocation, but questions and challenges remain. Would recreational anglers really want to exercise management control over their own fisheries? If so, how would enforcement activities be coordinated between AMOs and councils? What authority might be provided to AMOs to allow enforcement? How would enforcement and data collection be funded? And there are the potentially high set-up and initial transaction costs, and the fact that currently there are no working examples—it is a new idea.

Fish tags are another way that could be used to allocate recreational harvest among sub sectors within allocated limits. Tags or permits represent a common means to manage recreational harvest of wild species. Hunting applications are very common; fisheries applications are less common, but examples exist. Successes (and difficulties) with these programs offer lessons for development of similar programs in large-scale recreational fisheries.

It would involve multi-mode allocation/distribution mechanisms for scarce tags available at nominal cost. Tags would expire at the end of the season, denominate a number of fish, and be allocated to individuals and/or for-hire operators. In deer hunting programs, they are usually limited or have no transferability, and must often be obtained before harvest, although sometimes on-site tags are available. Equity and stakeholder support are critical elements for this type of program.

Examples of fish tag programs include the pink snapper fishery in Western Australia (imposes hard harvest caps), the paddlefish fishery in the Missouri River, South Dakota (imposes hard harvest caps), the salmon and sea trout fisheries in Ireland, the cod food-fish program in Newfoundland, and the tarpon fishery in Florida (imposes hard harvest caps). Other examples include the billfish fishery in Maryland and North Carolina, and the Multispecies Sportpac in Oregon.

Critical factors for success:

A critical requirement for recreational sectors is an organizational structure through which agreements could be reached and intra-sector harvest could be coordinated. Such a structure does not currently exist for most recreational fisheries, and interviews with angler representatives suggest hesitance to take on the additional organizational burden.

Allocation between recreational and commercial sectors is also critical. Any integration method will face the challenge of at least initial allocation of harvest between various commercial and recreational sectors. That would raise the question of whether there would be mechanisms available to transfer allocations between sectors (recreational or commercial), and how nontransferable sector allocations would avoid ongoing lobbying and “rent-seeking” challenges to change allocations.

Summary:

There is no single answer, but there are lots of opportunities. This presentation summarizes issues surrounding a complex challenge—the integration of recreational fisheries into LAPPs or sector allocation. Although challenges exist, current trends suggest there are costs and risks associated with maintaining the management status quo for large-scale recreational fisheries. Integration is only appropriate for some types of recreational fisheries. For others, status quo management may suffice.

There are a variety of possible means to integrate recreational fisheries into LAPPs or sector allocation. Practical applications of such ideas require the answering of difficult questions, and a cooperative process between councils and angler representatives.

When sector allocation is considered for commercial fisheries, the potential role of recreational fisheries should be considered. In many cases, significant increases in economic value may be realized by better integration of recreational and commercial management.

Questions and Comments

- Comment: As a commercial fisherman, if I join a sector I bring with that a state license and federal permit. I lay my financial world on the line. I subject myself to the penalties of the sector if I violate laws and I subject myself to state and federal prosecution. It seems as if this is a good faith gesture. I appreciate the potential benefits associated with better recreational organization such as limiting mortalities, but until a saltwater angler brings a license to the table, this does not have a lot of traction with me.

A: That is one of the challenges. The stake of the individual recreational angler is not nearly as great as that of a commercial fisherman. If you are a charter boat vessel operator, that is something different. They have a business on the line. That is why in many cases the business entities could be much more easily integrated. How do you promote monitoring and voluntary compliance? What is going to compel a recreational angler to be willing to be self-monitoring because you cannot watch every single one? That is one of the ideas behind the AMO concept. If you allow these recreational anglers to vote for their own representative council perhaps that would provide a greater stake. It would not be management passed on from above by the government. They would be monitoring and managing themselves, and it might provide greater incentive for compliance. It is a real big issue. There is a difference between someone who has their license on the line and a recreational angler.

- Comment: In a place like Rhode Island, on a numbers basis, we have no idea what the recreational catch is and a majority of saltwater anglers are subsistence anglers, many of whom do not speak English. I do not think we are going to be very successful in sectorizing that type of group.

A: You may be right. This kind of approach, while in theory can offer great benefits, is only practically going to be applicable in certain types of recreational fisheries. It is not a recipe book. This is not a one size fits all. It may be applicable and it may not be—just like a commercial sector. In some cases you may be able to maximize your benefits and in other cases you may be wasting your time. You have to look at it on a case-by-case basis. The instances that I have looked at so far have not been in New England. They have been in the Gulf of Mexico and in Alaska. I cannot tell you “Here is a fishery in Rhode Island where it would be particularly suitable.” But that will have to be determined by the people here.



- Q: One disadvantage of sectors for commercial and recreational fishermen not emphasized in these proceedings is that it limits participation. Does it expand participation on the part of U.S. citizens or does it limit it? That is what limited-entry sectors will do to recreational fishermen. In Europe, recreational hunting and fishing is tied up—it is not accessible for all people. The trend you are describing is going to constrain recreational fishing in the United States.

A: As we have envisioned these types of things, this is not something that would be imposed on recreational anglers. This is something where the recreational anglers themselves would want to do this. And if a recreational fishery does not want to do this, it is not going to happen. The government is not going to impose a recreational sector. The AMO concept is something where the recreational anglers would decide how they want to self-manage their fishery. So it is not about closing or locking up.

This country has a significant history with game hunting tags. So the idea that we are coming up with some new thing that is going to lock out people is not so—with a deer tag anyone can obtain a deer tag. This is taking something that has been used in game hunting for many years and asking if it is applicable to recreational fishing. If this is something that anglers think will make management better suited to what they want, then let's explore it. It is not about imposing something on the anglers—it is saying "Can we make management more responsive to what you want as a sport fisherman?"

- Comment: The basic issue for the commercial industry is we need a better management system. Under the regulatory process we have now, the commercial industry is causing too many fish to be killed unnecessarily. The recreational fishery has the exact same issue. For example with striped bass and fluke, a lot of fish are dying that are not being kept. We have the same issue in recreational fisheries as commercial. We have to solve the data issues. The data from the Monitoring and Evaluation Reporting Form (MERF) effort is so inaccurate. We need to get a saltwater license and the money from that license needs to be protected. We need that license to get better data and we have to solve that problem before we think of a sector for the recreational fishery.

A: There are two separate issues. 1) Are you collecting good data? Do you know how much you can really harvest? What is happening to the stocks? How much harvest is being taken? and 2) There is the issue of management. There are obvious problems with the MERF data, and there are recreational anglers that just want to fish and do not want to deal with any of this stuff. But there are recreational anglers out there who are dissatisfied with the way things are going and are interested in potentially coming up with a way that they might better self-regulate. The data collection issue is never going to be fixed 100 percent. In cases where it is appropriate let's have the discussions and explore the options simultaneously to dealing with the data and let's see if we can get somewhere better instead of saying, "I am not going to touch anything until we fix the data."

- Q: Have you considered applying the sector approach to tournaments, for example, shark tournaments?

A: Jon Sutinen and I have thought a lot about AMOs using tournaments as a starting point. The idea would be to have this type of management board but keep access open. The key was not to lock away the fishery. So the nice thing about a tournament is that anyone can participate. It is the same with fish tags. An AMO might distribute the tags, but anyone who wanted to get one could purchase one—a good mid-way to have some self-management but keep the fishery open to anyone who wanted to participate.

In this session, David Preble, a member of the New England Fishery Management Council, presented an overview of the topics and issues the council is currently addressing in connection with sector allocation.

Management Considerations

David Preble, Member, New England Fishery Management Council

Overview:

In New England, the council is considering sector allocation for the groundfish fishery, and the shape it is going to take is being determined by the council. We have been working on this for more than a year now. Last year, we formed the Sector Management Committee to put in an omnibus amendment covering all sectors. That proceeded until we discovered that what we needed was not an amendment but a policy. The work we did on sectors became our sector policy.

In the meantime we have seen the devastation caused by the Days at Sea system. The Days at Sea system is dying and it needs to go. Where we go from that has not been clear. It has turned into a movement towards sectors.

Where are we now in terms of developing sectors? Sectors involve a number of key issues, number one of which is allocation. Another issue we have to deal with is transferability. We also have to deal with monitoring, and we have to deal with the recreational fishery.

Allocation:

The allocation issue hopefully will be solved at the full council meeting on January 24, 2008. We have before us three options that have emerged from the groundfish committee. The options include:

- **No action**—This is required by law. We currently have a groundfish allocation scheme that is part of Amendment 13 in effect. That allocation scheme says allocation will be history based using a baseline period that extends through the fishing years 1999-2005.
- **History alternative**—This would be based on landings during the period 1996-2006. We had a discussion regarding this option regarding the leased Days at Sea. There was a considerable amount of discussion that included the possibility of not including leased Days at Sea. We looked at the numbers and discovered that leased Days at Sea are a very small percentage of the actual effort. And it was decided to go ahead and incorporate that into the 1996-2006 baseline.
- **Use a 50/50 formula**—Use one half as history based on that same period of 1996-2006 and one half as a capacity formula that will be based on length, horsepower, and the A Days at Sea allocated. The way that it looks like it will emerge right now is to take A Days at Sea and multiply that times the combination of length and horsepower (10 times the length plus the horsepower multiplied by the A Days at Sea).

The problem is trying to be equitable in a situation where equity is impossible. So in lieu of that, you have to at least be fair. And you have to be fair to the most number of people you can be fair to, and not discriminate against one group versus another. In other words, you cannot take fish away from one person and give it to another.

Who gets left out here? Unfortunately the two groups that appear to be getting left out are the hand gear people and the southern Rhode Island small fisherman that had C Days at Sea but no days allocated. One way we might get around that is taking people in that category and assigning them one A Day at Sea so they will have at least something—some value to their permits. That is where we stand right now with the allocation part of it.

Time Schedule:

Here is what we are looking at for a time schedule to have any of these 17 proposed sectors in place by 2009:

- By March 1, 2008, the final roster of participating vessels has to be submitted to NMFS.
- By May 1, 2008, the New England regional office has to send the moratorium rights tracking sheet to the sector managers in order to obtain authorization to release their confidential landings data.
- By June 1, 2008, the sector manager will have to provide the confidentiality releases to the Northeast Regional Office, and that would be the last chance for an owner to withdraw from a designated sector.
- By August 1, 2008, the Northeast Regional Office has to provide the actual allocations to the sector managers.

Transferability:

Sectors will only work if we have free transferability of quota among sectors. The ACL will be granted to them on an annual basis.

It is likely that quota transfers are going to have to be a part of the initial allocation because there is no way the initial allocation is going to be as fair and equitable as we would like it to be. So we are looking at the likelihood of quota transfers early on, but whether it is allowed later on remains to be determined. That is one of the things we have to figure out. It may be allowed later on a short annual period. These are ideas that have been floated.

Annual catch limits:

What we have determined is that the ACL needs to be freely transferable. This eliminates a lot of the problems I have heard raised. If ACL can be transferred, then we get around the problem of a particular sector approaching its cap late in the year. As the manager sees his sector approaching its TAC on a particular species, he will be able to shop around to either purchase or trade or in some way transfer ACL from another sector, or an ACL bank if the industry wants to go that way, to cover that temporary change. The problem we have here is that fish do not stay in one place, so we will have to have some way to account for that.

What happens late in the year? We could end up with a race to fish in the last couple of weeks. The best way to get around that is to allow some ACL trading after the fishing year ends to iron out those last-minute problems. This would be just for a period of a couple of weeks so people do not end up with overages.

Recreational issue:

The recreational issue is going to have an impact as we find out what the new rules are concerning ACLs. The ACLs are going to require some way of assessing the data for reliability. When we start doing ACLs, we are not going to be working with how many fish you can catch but how wide the buffer is between the overfishing limit and the ACL. That buffer is going to be driven by the confidence in the data and the problem is that it is going to be an ACL for the whole fishery. When you include a portion of the fishery that has a very wide confidence limit, it has an impact on everybody including the commercial fleet. This is what appears to be coming down the line right now.

We need to improve the data for the recreational fishery. The MERF data is useless. We need to change that, and the only way is through a licensing system on the recreational fishery. We have to have better data because it is now going to be part of the overall ACL. This is not true for all species, but it is true for some very key species such as codfish, where somewhere in the vicinity of 22 percent is taken by the recreational party/charter boat fishery.

Monitoring:

The last issue the council has been considering is monitoring. We are not going to be doing the kind of monitoring that is required of sectors with the kind of observer program that is in place right now. It is just too expensive.

It will require a high degree of monitoring, and will have to include things such as certified weighmasters and maybe 5 percent of traditional types of onboard observers. And other types of monitoring things will have to be considered such as electronic monitoring. We will have to be creative and come up with a mix of things that will get us the kind of coverage that we need. For example, maybe a group of graduate students gets together and forms a company to do monitoring.



Questions and Comments

- Q: What will happen if these dates for developing sectors are not met?

A: If they are not met then we do not have sectors for the fishing year 2009.

- Q: If we go to the next year, how is this going to affect individual fishermen trying to form sectors?

A: I am not saying these dates will not be met but it will be a hard job. The Northeast Seafood Alliance sectors are probably more along than others. They are convinced they can meet these times. Perhaps some will be put in place, but I do not think all of them will be. The only thing that will happen is they will start in 2010 instead of 2009. One of the disadvantages of going with Amendment 17 is that would put off the process until 2012 for sectors online.

- Q: If we can manage commercial sector so that you do know what we catch, would you support applying a quota with low buffers?

A: Yes, it may be done. I would have to think about it more. The overfishing limit (OFL) is going to be set by the Science and Statistical Committee. If the councils can come up with something that reaches that or is below the ACL—that OFL will be based on the uncertainty in the whole catch.

- Comment: If commercial fishermen are going to continue to be impacted by the unknown of the recreational sector, that is very disturbing.
- Q: What happens in the New England groundfish fishery is going to have an impact on the Mid-Atlantic fishery. Has the Mid-Atlantic Council been fully involved?

A: The Mid-Atlantic Council has been involved to the extent that we have a voting member of the Mid-Atlantic Council on the groundfish committee, and he has been very much involved in the discussion. Under the current structure of the councils, he is an ex-officio member of the New England Council and does not have a vote there but does have a vote on the committee.

- Q: Has the council decided if a sector is going to be relieved of closed area requirements and other such issues? How is the council going to address the equity issues? Days at Sea is going to be a default sector.

A: This allocation is not a permanent allocation. It would be for the first year. We will have to tweak that as it goes along. As far as closed areas are concerned, that will have to be decided further down the line for the reason that many of our regulatory closed areas also serve a habitat function. When the last habitat review was taken, in order to make it fly under the law, what was said was that these regulatory closed areas will also serve a habitat function. If we get to a point of fully rationalized fisheries, there would be no point in having closed areas.

- Q: Did you say you did not want to see any more closed areas, or did you say with a sector system you do not need closed areas?

A: With the sector system in a rationalized fishery I personally do not see the need for regulatory closed areas. I may revise that later on.

- Q: The quota baseline years of 1996–2006 is going to include leasing. People who have leased those permits have received that history. People who leased them out still have the right to fish their Days at Sea. So now you have someone who has leased days and has accumulated catch on leased days and that person that has Days at Sea is going to fish. You are going to make two permits into three. The gillnet sector is on Days at Sea. Days at Sea have not gone away. So they are going around rules—they are not limited by the daily limit. Why would the New England Council be going ahead without formal legal guidance from the federal level?

A: What you say is correct—it needs to be worked out, and that is why we may not meet our timeline. But as far as the leased Days at Sea is concerned, one way that has been proposed is to have, on the capacity part of it, A Days at Sea be a part of it. We have to maintain equity, but it is not imperative legally speaking that nobody be disadvantaged.

- Q: There is a money constraint. Why is the council moving ahead?

A: This may end up in a court of law.

- Q: Is the council going to consider the impacts of possible redirection of effort into Mid-Atlantic species?

A: It has come up but it is an issue that is kind of hanging right now. Redirection of effort is likely to occur.

- Q: What do I tell our fishing members who rely on those Days at Sea? What should they do? (For example, vessels that still have a Days at Sea allocation but are not interested in a sector but who are catching in particular winter flounder?)

A: I don't think there is ever going to be 100 percent sectorization. As B. Isbister pointed out in an area where they have been under sector management for about 20 years, they still have about 5 percent of the fleet that is not under sectors but under a different management regime.

Comment: I am in favor of sectors. I want NMFS to no longer be doing micromanaging of businesses.

We have to get business decisions back in the hands of businessmen. But sectors should have been considered as part of the Amendment 17 process because of the time pressures.

- Q: Are ITQs under consideration or is the council only considering sectors?

A: ITQs are most definitely under consideration. As a procedural matter, when Amendment 16 was cut back to just meeting mortality objectives required over the next year, we initiated Amendment 17. Technically speaking, Amendment 17 is on the table right now and we moved ITQs, sectors, and area management all into Amendment 17 and none of them were killed. At a subsequent vote in June, the proposal was put forward to move sectors into Amendment 16.

- Q: Only sectors were moved into Amendment 16, not ITQs?

A: Yes. That is correct.

- Comment: I would urge caution in pursuing sectors without considering ITQs. I am not sure I like the idea of a commune controlling my life either. It is still maintaining a level of control over people that may not be desirable.

A: That is a valid point. Once a sector is formed, a sector will be free to use an ITQ approach if they want to. That kind of management decision will be left up to the sector.

- Comment: Sectors could just be disguising the ITQ issue. The Magnuson-Stevens Act said you can consider ITQs but it has to go to a referendum vote.

A: The referendum issue is something people were afraid of. Now we should do it. That would be my preference but it is not how it worked out.

- Q: Has the groundfish committee made a recommendation concerning the charter party boats to be included in Amendment 16?

A: Party charter boats have been postponed until Amendment 17. Party charter boats need to be considered. They are not recreational. The boat is a commercial operation. They have the same kind of federal permits, and it needs to be dealt with that way.

Small Group Discussion—Sector Option

Summary of Discussion

In late afternoon on the first day of the workshop, participants gathered into small groups to discuss the sector option. They were asked to consider a hypothetical fishery situation that exhibited the problems of a race to fish, business inefficiencies, safety-at-sea issues, and market fluctuations that were resulting in lower fish prices, and decide whether or not they would apply a sector approach to management. The discussions that ensued focused on the advantages and disadvantages associated with a sector option, and the factors that should be considered regarding this approach. A summary of the major points made is listed below.

Potential advantages associated with a sector allocation approach:

- Industry would be more involved in management and would have more clout.
- Fishermen would be able to avoid the race to fish.
- Daily profits would increase.
- High grading of fish would decrease.
- Discards go down in that sectors offer a way to turn discards into sellable fish.
- There would be more opportunities for information sharing and self-policing among industry members.
- Safety-at-sea issues could decrease as fishermen have more choice on when to go to sea.
- There would be opportunities for eco-labeling (Fishermen would be fishing sustainably, staying within the TAC).

- Prices would be better and there would be a more steady supply of fish to the marketplace.
- A sector does not have to be one size fits all in terms of rules and regulations.
- Sectors offer a means of developing a system that embraces conservation.
- Fishermen spend one half of the year chasing fish and one half of the year running away from fish—sectors offer a way to get away from this.
- Sector allocation offers a way to get away from trip limits.
- Fishermen can avoid too much catch of a species when nearing a TAC.
- Sectors offer an option to avoid going all the way to IFQs/ITQs.
- Sector approach helps with scientific uncertainty.
- Flexibility can extend fishing seasons and provide more secure employment.
- Adherence to hard TACs ends overfishing.
- Sectors can be designed so the family fishery can scale up and achieve corporate- style gains within the family fishery model.
- Sectors force fishermen to fish more responsibly.
- Sectors can provide a safety net for members in terms of sharing quota.
- There would be economic efficiency from consolidation and from a better match of inputs with outputs.
- Sector management allows for better business planning.
- Fishermen can design gear and fishing practices to match species mix in allocation.
- Sectors offer more stability so that banks will make loans and fishermen will borrow.

Potential disadvantages associated with a sector allocation approach:

- Involves financial risk (Sector members have to contribute to start up and administrative costs when forming and running a sector).
- Fishermen may have to decide to be in or out with no half-way point.
- It may not be very advantageous to a fisherman to be part of the “common pool.”
- The existing database is poor, making it hard to make good decisions.
- There are difficulties involved in ensuring accountability.
- Difficult allocation decisions have to be made—whenever access is limited and allocations are made, someone is always left out.
- There is the potential for the initial allocation to not be large enough for a fisherman to make a go of it.
- It is hard to apply a sector concept to the management of multi-species—the system is limited by the weakest species.
- Providing for new entry is difficult in that it could be too costly to gain access to quota.
- Sectors involve a greater degree of monitoring.
- Establishing sectors is going to create extra work for NMFS.
- Violations by one member can shut down the whole sector, impacting all members in the group.

Other discussion points:

General management:

- If sectors are a stepping point, management should just go straight to ITQs. But financially, there is fear of ITQs being introduced into a weak market.
- A species-specific strategy will not work. There is a need to include all species history.
- Fluke is managed by state-by-state quota. What stops a state from establishing an ITQ?
- ITQ vs. sector –
 - output control is the same
 - market system—the difference is between individual vs. group
- With an ITQ approach, fishermen lose the ability to make the point that we care about responsible stewardship.
- The huge discarding problem keeps populations from rebuilding.
- ITQs within a sector option is another idea.
- There is an urgent need to move forward with a new approach, and stewardship is a key component to moving forward.
- What is in place to keep the allocation with the fishermen?
- The council should not have the role of social engineering. It should create an enabling environment for

interested communities to get involved.

- Given the increasing cost of permits on the open market, permit banking, where permits are held by NGOs and rented out at lower costs to incoming fishermen, may be a way for communities to ensure access for small-scale, local fishermen.

Enforcement and monitoring:

- Sector management would require recoding programs on boats.
- The focus would be on industry—fishermen would need to do what they need to do to comply and this approach would require more work on their part.
- Observers and a video camera system like that used in the British Columbia halibut fishery are monitoring options. There must be truly punitive, stiff, and graduated fines.
- Check a portion or spot checking could be used to ensure full retention of a catch.
- Every member should have something that is at risk in the event they don't follow the sector rule. This could be financial or their allocation, etc. If they mess up, this "ante" could be forfeited to the sector.

Data:

- The overall feeling is that data is poor. Sectors provide an opportunity for industry to buy in to have good data.
- There seems to be very little use of trip vessel reports. It seems that mostly dealer reports are used.
- How can you design a sector that has flawed information?
- Real-time reporting is needed—new technology should be explored. There needs to be a peer review because NMFS makes the numbers appear as they wish.
- Independent review is sorely lacking in current fishery management plans. Fishermen would like a peer review of all data collection sources.
- A solid verifiable data source may be supplied by sectors.

Implementing sector approach:

- It is critical to develop a list of objectives for what the sector is trying to accomplish and to get everyone on same page.
- Transferability should be a component of a sector.
- Unlimited trading between sectors can help preserve communities (e.g. Point Judith and New Bedford).
- In setting up a sector, fishermen need to know what problems they are trying to solve.
- In allocating to a sector, managers should take all the catch history and not do it on a species basis.
- There must be a way to account for landings in all ports, and increased observer coverage.
- Enforcement rules must be spelled out ahead of time.
- Leasing should be included.
- There needs to be a certain level of support for sector formation to help fishing communities develop impact statements, plans, etc.
- Sectors should not create a loss in history.

General conclusions:

- Sectors may be useful for a transition from the current system.
- Sector allocation may be a useful tool, but given the uncertainty in data and history there is a need to proceed cautiously.
- There are some concerns about the details. The discussion is very general right now, and it is hard to predict future problems.
- The bottom line is there are a lot of issues and concerns that need to be addressed in working out sectors. These fall into the areas of:
 - Allocation;
 - Enforcement/monitoring/penalties;
 - Multi-species approach;
 - Adequacy of database to begin with; and
 - Building capacity among fishermen to organize and administer sectors.

F. Rights-Based Management in U.S. Fisheries

Near the end of the two-day workshop, the discussion broadened out to consider the potential advantages and disadvantages of rights-based management approaches in general. The first presentation of this segment focused on the findings in the report “Assessing the Potential for LAPPs in U.S. Fisheries,” Redstone Strategy Group, LLC, and Environmental Defense, March 26, 2007.

Sustaining America’s Fisheries and Fishing Communities—An Evaluation of Incentive-Based Management

Kate Bonzon, Environmental Defense

Overview:

The focus of this presentation is on summarizing the findings of the study Environmental Defense did with the Redstone Strategy Group. It was a year-long study started in 2006, and it focused on fisheries that have moved to catch-share management, which is a secure, dedicated access management similar to what people refer to as LAPPs.

The study looked at 10 fisheries in depth. The basic thing that we found is that in the absence of a secure, dedicated access to fish, the incentives are mismatched.

Background information:

After decades of experience in fisheries management in the United States, it is generally understood that well-managed fisheries must have scientifically set and enforced catch limits or caps on the total amount of fish that can be taken, and controls on bycatch—the fish and other marine life that get caught in gear unintentionally. Well-managed fisheries must also encompass the protection of key habitats, which can include nursery grounds or feeding areas.

Despite this knowledge, implementing and adhering to these bottom-line requirements has proven a daunting challenge. We have been trying to do this in the United States since 1976, and our track record has not been very good.

The problem:

The problem centers on the need to align economic incentives with conservation incentives. In many fisheries, input controls lead to a race to fish that results in waste. To align economic and conservation incentives, fishermen need a secure share of the catch. That can be achieved by giving that share to individuals (such as an ITQ) or to a group of fishermen (such as in a co-op) or to a community.

Today, the stakes could not be higher. We continue to have depleted fish stocks: close to two-thirds of federally managed fisheries are overfished, undergoing overfishing, or are considered to be in an uncertain status due to lack of science. Peer-reviewed science has estimated that 90 percent of large predatory fishes are already gone from the world’s oceans. Ecosystems are stressed, and fishermen and fishing communities are imperiled. The typical fisherman today now makes nearly 30 percent less than the average American male worker, and his job is 35 times more dangerous.

But why after decades of seemingly stricter and stricter rules have things not improved? Conventional fisheries management has resulted in a tragedy of the commons in which the need for short-term economic survival comes at the cost of resource sustainability. Fisheries capacity has grown substantially in the last few decades. In response, fishery regulators have put limitations on fishing effort and access, which effectively put fishermen into a competition with each other and the regulators.

When regulators shortened the fishing season, fishermen responded by increasing fleet size and using more powerful engines. This triggered further cuts in the season, prompting fishermen to put out more hooks, lines, and nets, leading to further cuts in the season, and so on. In the Alaskan halibut fishery, for example, the annual commercial fishing season was ultimately reduced to just 48 hours.

This “race for fish” is extremely wasteful and dangerous. Maximizing their limited time, fishermen deploy thousands of extra hooks and lines. In many cases, fouled gear is simply cut adrift, where the hooks continue to “ghost fish” for months. And with fishermen caught up in seasonal derbies, they are compelled to go out in dangerous weather for fear of losing their catch to competitors.

Catch shares as the solution:

The solution is catch shares or dedicated access to fish, which align economics and resource sustainability. Secure dedicated access to fish can be allocated to individuals, groups or communities, and can also be area based. The result is better for fish and fishermen.

Starting in the 1970s in Australia, New Zealand, and Iceland, a new fisheries management approach, known as catch shares or LAPPs, began to take hold. Catch shares work by dedicating a portion of the total catch to an individual fisherman, a community, or a fishery association. Fishermen know how much they are allowed to take each year.

With a secure share of the catch, fishermen no longer need to race. They now have a direct stake in the overall health of the fishery, so that economic incentives are fully aligned with resources sustainability. This provides for capacity reduction, allowing seasons to expand. The slower pace of fishing can allow fishermen to more effectively plan their season. They can reduce bycatch and gear deployment, fish when the market is strong, and avoid bad weather. With catch levels controlled, regulators can relax previous effort constraints.

It is notable that early catch-share programs were not implemented for environmental reasons, although large resource conservation gains were made. Reducing costs, avoiding penalties, and engaging in other practices that improved conservation simply made good business sense.

However, despite these benefits, catch-share programs have not been without challenges. Any fundamental change in the way a business operates is bound to meet with some resistance, particularly from those that gain the most from the conventional approach.

Some are concerned that catch shares privatize public fisheries. Many difficult questions arise about allocation, trading rules, and transition assistance, as well as the ability to appropriately monitor the new programs. In the United States in particular, finding ways to understand and address these challenges has been muddled by a lack of scientific data and reliance on anecdotal information.

Study on catch-share programs:

In the study, information was collected for over 100 fisheries, focusing in detail on seven federally managed catch-share fisheries and three catch-share fisheries that have shared stocks with British Columbia. These latter fisheries included:

- Alaskan fisheries—crab, pollack, sablefish, halibut (ITQ except for Pollack, which is a co-op)
- British Columbia—sable fish, halibut, groundfish
- West Coast—Pacific whiting
- East Coast—surf clam and ocean quahog, wreck fish

The Gordon and Betty Moore Foundation provided \$1.2 million in funding to complete the study. A key member of the team was the Redstone Strategy Group, which performed quantitative evaluations of the industry as a whole as well as each existing catch share program. Further details can be found at the website www.sustainingfisheries.com.

At the beginning of this study, seven federal fisheries operated under catch shares. With more fisheries in need of a better approach, a need clearly existed to assess the performance of the operating programs against key environmental, economic, and social measures. Does catch-share management really impart the benefits for fish and fishermen that have been described?

Findings of study:

The fisheries were analyzed for environmental, economic, and social performance before the catch-share program was implemented, when the program was implemented, and then following implementation. The data presented represent averages. In some cases, magnitude was variable, but trends were consistent across all fisheries for each performance measure.

Before the catch-share programs were implemented, the fisheries were declining. Catch limits were exceeded 65 percent of the time, bycatch was up 23 percent, revenues were down 10 percent, safety had declined 20 percent, and employment was unstable.

After the catch-share programs were implemented, as the data below indicates, fishermen obeyed catch limits. The yellow line represents an aggregate for all 10 fisheries looked at. Before the program was implemented there were regular overages. After the catch share was implemented, compliance rose and fishermen

actually tended to err on the side of caution, with combined landings averaging about 5 percent below the cap. The reasons for that are: 1) The fishermen have a secure share, but if they go over it they have to purchase more quota on the open market or they are penalized. There is an incentive to stay under it. 2) It probably is not worth the economic costs to go out there and get that last load of fish.

The fundamental difference with catch shares is that limits are built directly into the program. Under conventional management, catch limits are not always put into place, nor are they regularly adhered to even when they are set. Exceeding limits is like digging into the principal of any asset. Fishing away the principal year after year simply eats it up until the fishery is no longer sustainable.

With the implementation of catch-share programs, biomass estimates improved. The graph below shows uncertainty intervals around the stock biomass. The uncertainty before was an average of plus or minus 43 percent, and after catch shares were put in place, it is plus or minus 27 percent. That is a more confident accounting of the stock. Better science leads to better TACs.

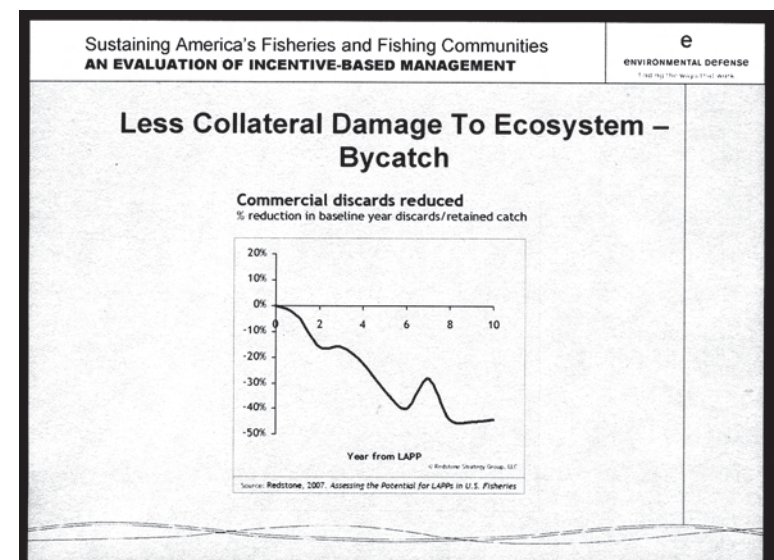
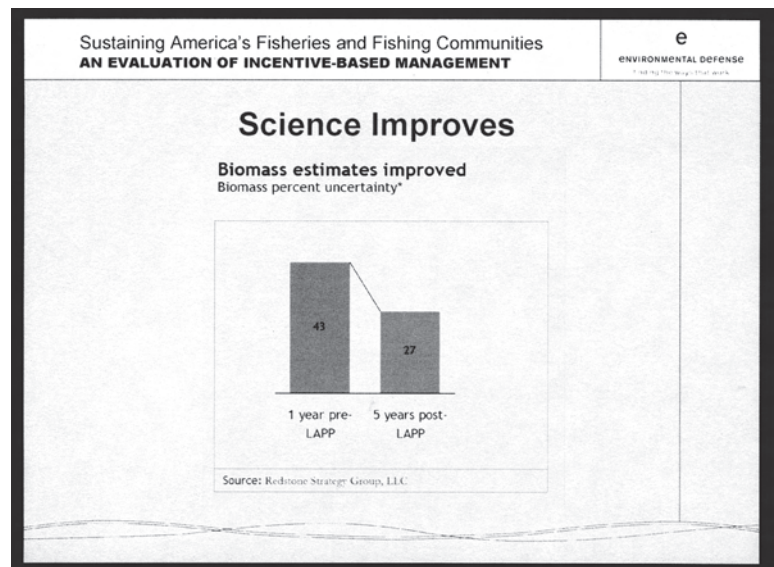
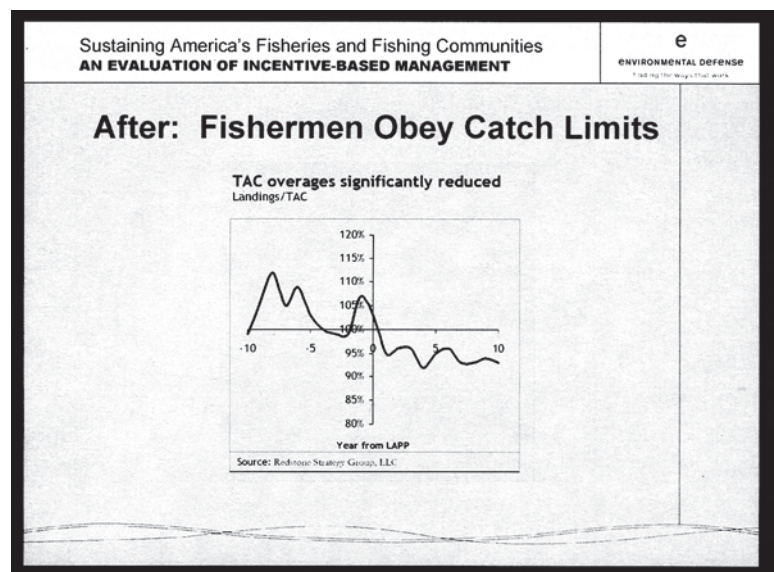
The reason there was better science was the fishing season slowed down, and the fishermen were collaborating more with the scientists and the regulators and were able to collect better information. The data indicates 72 percent of catch-share programs have a monitoring program, compared with just 26 percent of conventionally managed fisheries. Having good science to determine the catch limit is critical to ensuring sustainable fisheries. More scientific information translates to better accuracy in fish abundance estimates.

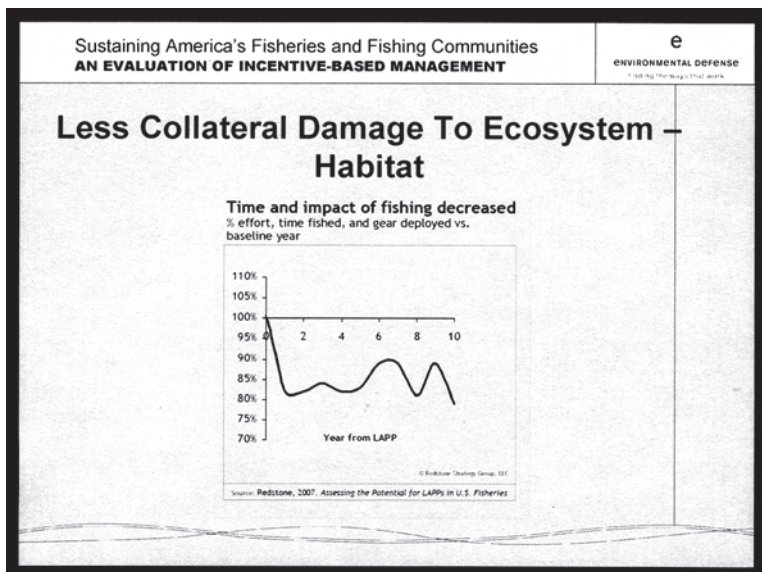
Catch-share programs result in less collateral damage to the ecosystem as measured by bycatch reductions. In the fisheries we studied, bycatch was steadily increasing in the five-year period before catch share implementation, but as the data in the graph shows, due to aligning incentives with conservation and employing bycatch quotas through catch-share programs, this trend was reduced by more than 40 percent. The same result was found when we examined a fishery in real-time with a catch-share sector and a non-catch-share sector. The catch-share sector had 40 percent less bycatch than the non-catch-share sector.

Bycatch management often relies on specifying gear types, or the conditions for use of the gear, but these strategies are undermined when the incentives in the fishery push fishermen to catch as much as they can, as quickly as they can. When the incentives change, bycatch becomes something that is costly, and fishermen want to avoid it.

Fishermen figured out ways to get around that bycatch, and in addition they were able to keep fish they caught and bring it in as long as they were within the quota. With the decreases in bycatch and the increased compliance with catch limits, the fisheries studied saved the equivalent of the seafood consumption of 16 million Americans each year.

There were also likely fewer impacts on habitat in catch-share programs. One key method for reducing habitat damage is reducing fishing gear impacts. As the graph below indicates, catch-share fisheries helped do this by reducing overall fishing effort, time fished, and gear deployment by 20 percent, and





fishermen were much more able to run their businesses in an efficient way. In the Alaskan sablefish fishery alone, there were 53 million fewer hooks in the water two years after the catch-share program was implemented compared with two years before.

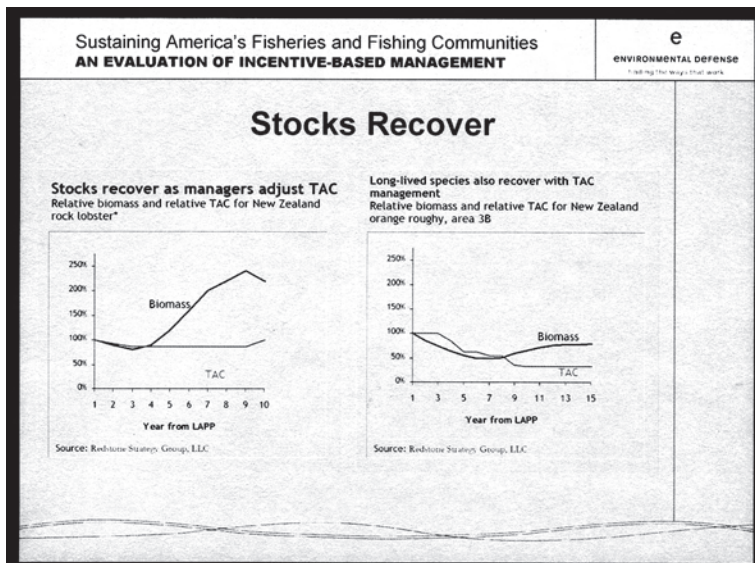
Catch-share programs can also help in rebuilding stocks. In the study, none of the 10 fisheries looked at were overfished at the time the catch shares were put into place, so New Zealand was examined where there is a longer history of IFQs. The study looked at fisheries that had been in overfished states.

The graphs below depict relative biomass for two New Zealand stocks: lobster and orange roughy. The yellow line is the biomass and the red line is the TAC. The relationship between the two lines shows that if catch can be controlled, biomass is rebuilt, as long as catch is at the right place.

In the lobster fishery depicted in the graph on the left, if the TAC was lowered a little, biomass started to go up. When the TAC was kept stable until the biomass went up and then the TAC was increased a bit, biomass responded and started to come down. In the graph on the right for the orange roughy, a long-lived species, the data shows that if the TAC is lowered enough, biomass is going to come back up.

The key to this is that when a catch share is in place, there is certainty of not going over the TAC. This enables managers to be sure the stock is being rebuilt.

In terms of quality of life improvements, revenues went up with catch-share programs. Prior to catch-share implementation, boat yields and revenues were declining. With decreasing catches, increasing regulation, increasing costs, and relatively low revenues due to supply gluts and low fish quality, fishermen, fishing communities, and the public were not receiving optimal value from the fisheries. In the fisheries studied, yield increased per boat and revenues followed a similar pattern, with revenues increasing an average of 80 percent following catch-share implementation. The graphs below illustrate this point.

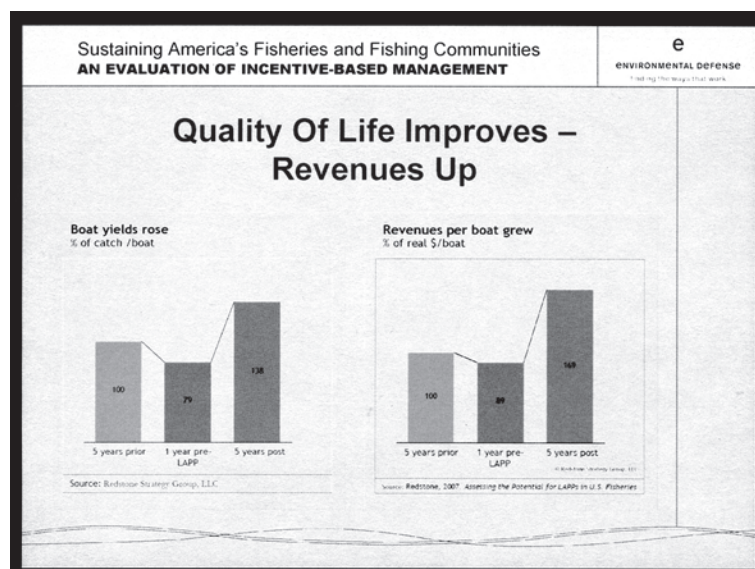


The blue bar represents five years prior to catch-share implementation, and the orange bar one year before the implementation. The green bar is five years after implementation.

In 2005, U.S. domestic fisheries landed 9.6 billion pounds of seafood, valued at \$3.9 billion. If better managed, the same amount of fish could have yielded more than \$5 billion and provided fresher, higher quality seafood to consumers.

Safety also dramatically improves. Conventional fisheries management consistently requires fishermen to choose between their safety and making a living. In the absence of a secure catch allocation, fishermen must compete against each other and the elements to bring in as much fish as fast as possible.

As seen in the figure below, safety was decreasing prior to catch-share implementation. However, five years following implementation, safety—as measured by decreases in fatalities, vessels lost, search and rescue missions, and safety violations issues—increased on average by two-and-a-half fold. The catch share provides fishermen flexibility to



fish when the weather is good, without losing the opportunity to earn a living.

With a transition from short, intense fishing seasons under conventional management to a secure allocation of the catch under catch-shares management, there are profound changes in the nature of the fishing business. Not surprisingly, some of the most contested issues in the design of catch-share programs involve how these changes affect existing jobs and fishing-dependent businesses.

The impacts in terms of extension of fishing season and full-time employment are shown in the graphs below.

Under catch shares, fishing seasons were extended on average by the equivalent of 35 workweeks per year. Spreading out the supply over a longer season meant that the product was landed more consistently, and processors were able to keep it fresh, producing higher quality seafood and providing more value to fishermen and consumers alike.

As the fishery changes, so does the workforce. Catch-share programs showed a substantial increase in full-time jobs. Overall, the work becomes more stable, safer, more year-round, and more profitable.

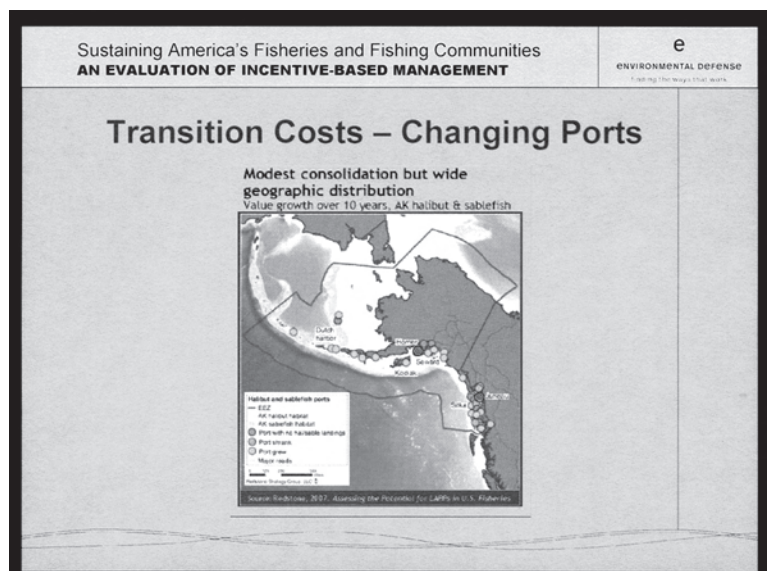
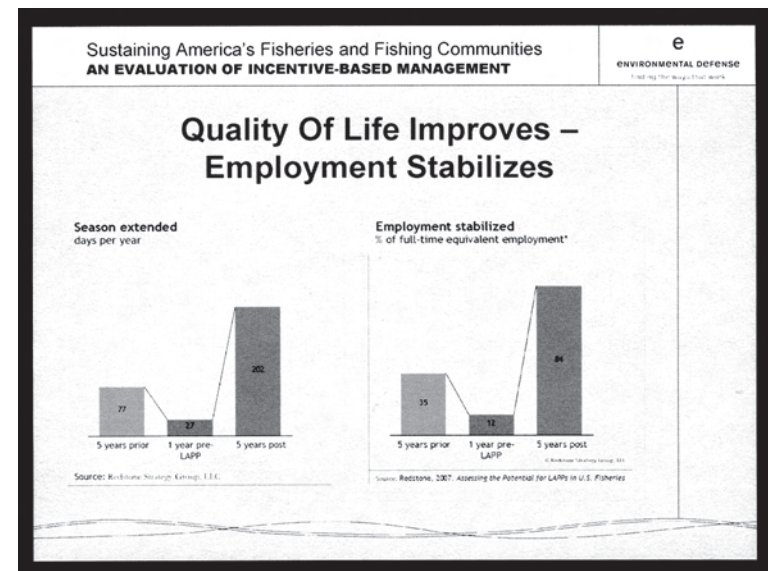
At the same time, it is not hard to find fishermen or shore-side workers who lost the part-time jobs they held before. In the analyzed fisheries, following catch-share implementation, the absolute numbers of employment opportunities fell by over half despite the fact that the amount of work remained constant. In lightly populated communities dependent on seasonal and part-time labor, reports suggest that the loss of these jobs can have substantial impacts. But for other fishermen and communities, an increase to more stable full-time employment is a welcome change.

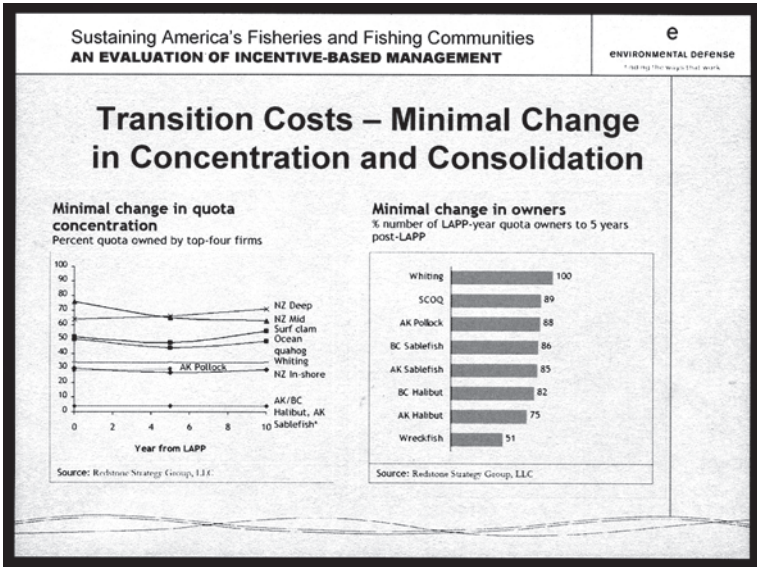
The fate of ports rises and falls with the value of the products that move through them. It is expected that catch-share programs increase the aggregate well being of ports, since the value of the landed and processed fish increases. However, there are transitional costs, and some ports that have succeeded under the conventional management system can suffer.

The Alaskan halibut and sablefish fisheries provide a good example. In the figure below, the red dots represent ports where halibut and sablefish landings stopped, the pink dots show ports where landings shrank, and the green dots show ports where landings grew. Ports that stopped receiving landings represented about 8 percent of the total catch. Some middle- and high-tier ports grew. Change was fairly well distributed.

Catch-share programs quickly and efficiently solve the overcapacity problem. In most fisheries, the total number of quota owners dropped, typically by 10 to 25 percent. While this is expected and necessary to reduce capacity, a separate issue is ownership concentration.

There has been concern that catch-share programs might lead to excessive concentration of shares in the hands of just a few owners, which could create monopoly power. It can also be a problem from a societal point of view, if, for example, a fishing community wants to promote widespread ownership of catch shares in the community.





The figure below shows the change in concentration of quota held by the top four firms (a common metric for assessing monopoly formation) following implementation of the catch-share program. There was minimal change. In addition, some fisheries were highly concentrated before the catch share was implemented. This suggests that the driving factor behind quota concentration is the underlying capital requirements of the fishery. For example, for fisheries like surf clam and pollack, which require capital-intensive ships and processing, there are basic economies of scale.

The data do show that there are a lot of different levels of consolidation amongst fisheries. But what is driving that is less about the catch-share system and more about the underlying needs and inputs of that fishery. In a fishery that is off shore and requires large vessels, more consolidation will probably be found than in something that is more inshore that can be accessed with hooks and lines or traps.

In the Alaska Halibut fishery, the line in the graph above is perfectly flat. This is because participants in the fishery felt it was important to put in an ownership cap (no one can own more than 1.5 percent of the overall quota) to preserve the small-boat fleet.

Catch-share programs can be designed to achieve specific environmental, economic, or social goals deemed important by stakeholders and decision-makers. The chart below lists some of the public interests that can be achieved and the design options available for meeting the goals. For example, one fishery may want to maximize economic efficiency, while another may want to preserve the current owner-operator fleet structure. It is important to recognize that tradeoffs do exist.

Sustaining America's Fisheries and Fishing Communities
AN EVALUATION OF INCENTIVE-BASED MANAGEMENT

ENVIRONMENTAL DEFENSE
Finding the ways that work

Customized Catch Share Designs

Illustrative public interests	Illustrative design options
Historic industry structure (e.g. gear types, small boat fleets)	<ul style="list-style-type: none"> Concentration limits Maximum leasing amounts Vessel category or gear type restrictions
Stewardship	<ul style="list-style-type: none"> Hard catch limits Significant monitoring
Localize management and economic benefits to preserve fishing heritage	<ul style="list-style-type: none"> Restrict trading within specific management zones Require fishing experience Limit to owners on board Require U.S. citizenship
Promote economic efficiency	<ul style="list-style-type: none"> Allow leasing Open trades and leases for entire season Allow middlemen traders
Minimize bureaucratic costs	<ul style="list-style-type: none"> Create minimum transfer blocks Minimize government involvement in trades

Conclusion:

Catch shares make everything work better and are the missing piece at this point. The report demonstrates that catch shares can provide substantial environmental, economic,

and social benefits when designed appropriately. By aligning economics with conservation, decision makers no longer have to choose between fish and fishermen, but can choose to benefit them all.

Any major reform to fishery management can take several years. Integrating catch shares has been no exception, especially considering the unique environmental, economic, and social goals of each fishery. In the course of the study, several ways were identified to make the process more timely and effective, and these are included in the following list of recommendations for policy makers.

- Ensure a robust and effective design process:
Stakeholders should be educated on catch-share programs and options. A first recommendation would be a rapid feasibility study highlighting key expected outcomes of transitioning a specific fishery to catch shares. Second, a design tool is now available, based on this study, which can be used to identify typical solutions to catch-share implementation questions.

In addition, the efficiency of the design process should be improved. For the most part, designing a catch share system can take five to 10 years from start to finish. Sometimes this is due to diffuse decision making and membership changes on regulatory committees and councils. Establishing a small design committee with clear instructions as to the goals of the program is recommended. Another key recommendation is prioritizing funding for the design process.

- Invest in the future:
The increased value created by catch shares provides an opportunity for stakeholders to meet future funding needs as well. These include helping to cover the costs of the program; improving data

collection systems to improve the science behind the management; achieving the social objectives of particular communities; or increasing the level of monitoring and enforcement. Cost sharing could occur through landing fees, share auctions, fishermen financing of monitoring, and allocation of shares to particular ports, communities, or fishing groups.

- Employ a thorough review and program adaptation process:
Catch-share programs should be adaptive to regularly improve performance of program goals and address any new issues that may arise. This requires updated science as well as a robust process for addressing necessary management changes. It is recommended that programs undergo strong regular reviews.

Questions and Comments



- Q: Are those ex-vessel values of the overall fishery?

A: No. This is looking at the percentage of people that remain in the fishery after the catch share was implemented. What is the New England groundfish fishery worth? Less than \$100 million. Some of these will probably be bigger. The Alaska halibut fishery is pretty valuable as is the Alaska pollock fishery.

- Comment: In the New England groundfish sector we are talking about a multi-species fishery. We have to be careful when talking about values.

A: The British Columbia fishery is also a multi-species fishery. It was important for us to look at that to see how you can manage a multispecies quota system. There is a range of values in this. Depending on how you design it, a catch-share system can work for any value of fishery. You do not have to be a certain threshold in order for it to work.

- Q: In Alaska there is a lot of sensitivity about the reallocation of permits away from rural or Native populations to other populations in the state. You showed changes in the ports in the Alaskan halibut fishery, and you showed that 25 percent of the fishermen in that fishery left after five years. Was there a migration of ITQs out of the rural or Native communities to other areas?

A: Our study did not go into that much detail so I cannot speak to that. I think from what I know anecdotally there is that concern. There are some communities that are rural that have retained their quota or access to a fishery through a community development quota. That might be one of the reasons why New England is interested in this sector approach because it ties things more to an area and helps a group of fishermen maintain that. It is true that a lot of these fisheries that we studied were individual fishing quota fisheries. That was the experience of the United States at that time. You can design things though, so you can have community-based cooperatives or an area tied to an IFQ to get around that.

- Q: In the British Columbia multispecies fishery, was there any implementation of a hard TAC in that fishery?

A: They have an individual vessel program, so it is the same thing as an IFQ that is attached to the vessel and not the person. They have a hard TAC limit for every single species and they trade quota on most every single species. And they have a pretty sophisticated system where they do real-time trading where a fisherman can be out on his boat and he will be fishing and be pulling in his trawl and seeing he has a certain number of X fish. He can then call up his broker and say this is what I am pulling in. Can you go buy me some of that quota on the market to cover me? They have a sophisticated system and they are trading all the time.

- Q: What are the values that are assigned to the fish they have a choice to catch?

A: I do not know what their quota is trading at. It depends on the species. The species that have lower quotas I would imagine are trading at a higher rate versus species that have higher quotas that are probably trading at a lower rate.

- Q: Do they have daily market fluctuations in the price of fish?

A: They do have some daily market fluctuations and the British Columbia fishermen actually like this aspect. They call up their fish broker before they go and ask, “What is the price on fish today?” and if it is not high enough they do not go.

- Comment: I see a lot of problems here because we have a lot of factors that plug into the equation—for example, the influence of Canadian groundfish on the New England fisheries market. On any given day they might ship one half to three quarters of a million pounds of fish down to the states, and we do not even know it is coming. You could be looking at numbers and then get in and find they have changed.

A: That is an important point, but it may have less to do with whether it is good to go to this type of system or not. You have that problem under a Days at Sea system right now. Also, where you are coming in and you do not know what the price is going to be, the catch share system might provide you with some more flexibility to deal with that as time goes on.

- Q: Did fishermen use quota to land fish they might normally discard?

A: It depends on the fishery. In a fishery where the discards they bring in are marketable fish and where they are allowed to land them and sell them on the market, yes. They purchase quota from someone else or they have more flexibility because they do not have a daily trip limit. It leaves the discard category and becomes a targeted catch category.

- Q: On consolidation, did you look beyond the four top firms?

A: We did not look beyond that other than at the number of participants that were still there. There are all sorts of ways fishermen get creative to get around consolidation caps. The take-home point that I took from this is if there is something that you as a community or you as a council care about, you can put restraints and limits into your program to make sure that does not happen.

Panel Session: Pros and Cons of Rights-Based Management

In this session, a panel of three people, two current Rhode Island fishermen and a former fishermen who is now a consultant, presented their viewpoints on sector management. More generally, they were asked to address their interests in a fishery and how those interests are met or not met. The panel presentations were followed by a whole group question-and-answer and discussion period.

Discussion Leader: Sally McGee, Environmental Defense, Mystic, Conn., and member of the New England Fisheries Management Council

Joel Hovanesian:

As far as the pros on sectors, I think that it is a great idea to look at different options and different opportunities to move forward, and to replace the plans that are currently in place. Sectors can be a useful tool in that they will give flexibility if they are done right, and we must remain open-minded to any programs along these lines. I hope that when they are developed, if they are developed, that it is with the industry doing the development and not private or influential persons outside industry. We need goals to make this all work as our futures depend on it.

My concern going forward is basically that we are going to be building a new program from the bottom up, and at the foundation of this program are the same issues that plague the industry now. Those issues are centered on unreliable science. The term “best available” needs to be rethought. Best available science is not necessarily the best science that is out there.

Government-generated science is a serious issue. I was in Newfoundland at a gear selectivity workshop in 1996, and we were told by some of the foremost scientists in the world in fisheries management that these time surveys that we are using today are the most useless tool that we have in trying to manage fisheries. Yet this is the method that we continue to use today.

To get a true picture of what is going on in our complex ecosystems, most other countries use industry data to get it right. Unfortunately we turn a blind eye to many of the programs that have been developed by industry in this country that try to bolster the government data. This reluctance to use this data seems to come from other echelons within the NMFS and cannot be allowed to continue.

A fundamental change in attitude needs to take place, and the people who are at the root of this reluctance today need new marching orders or must be replaced with more open-minded individuals. We have been going through this exercise for years and years and years, and we do not ever seem to change.

So I ask:

- What are we going to have if we base new programs on the same data?
- Will we find enough resources to give to groups to keep all fishing operations viable?

If we use the same unreliable science to come up with these programs we start off on a shaky foundation.

We have heard from many organizations that have instituted sectors, and we hear one common theme: less fishermen—fewer boats. If instituted broadly, what will become of the infrastructure now in place? Will fish houses fail? Will support companies go out of business?

As we eliminate more and more people who rely on this industry, will we also eliminate their voices from the process? We will have less people to fight for us. Is this going to just make it easier for external forces to impose their will for the long-term?

We need to be pro-economic development. And if this trend of eliminating businesses continues, we do not see where it can help in the long-term.

Ted Platz:

I would start out by asking what is rights-based management? What distinguishes this from other management systems? I think rights-based management is based on a simple recognition that ownership produces stewardship. This is an essential ingredient in any fisheries management plan, as all us fishermen know.

Rights-based management is really a misnomer because the system is not really so much about the rights of fishermen—it is really more about the needs of the species and the limits of the environment. It might more correctly be called a species-based management system.

I was recently reading a book on fisheries management specifically talking about striped bass management, and I came upon a quote from a Maryland fisheries biologist. It struck me. What he said was that fisheries management, at its best, is about the needs of the species and not the desires of man. I thought that is really nailing it in a sentence. This phrase provides a good acid test that we can take and use to look at any fisheries management proposition. Basically what it is asking is, “Who is driving the bus?”

We can look at open access and see that was driven by the desire of man. This is what we have always started with. But populations become too dense, our technologies develop, and we overwhelm the system.

So we move from open access to a Days at Sea system. This is a unique system. I don't think anyone else tried this. With input controls and soft TACs, it is not about the needs of the species. It is also not about the limits of the environment. Interestingly, it is not about the desires of man either. I don't think there is a fisherman in this building that is happy. Basically what we have is a driverless bus. That is how we ended up with Chris Brown's train wreck.

This brings us to where we are today. What distinguishes this idea of the limits of the environment and the needs of the species are the ideas of accountability and sustainability. We think of these words in fisheries management as our words, as new words, but the reality is they are not. If you look at accountability and sustainability, you will find these concepts in every one of our institutions in our society.

Look at our governmental institutions. We have accountability through a system of voting. We hold our officials accountable through voting. We created an independent judiciary to reinforce this position. We also have our financial institutions. Anyone of us who has a business and goes out to get a loan knows that the first thing you get asked when you go to get that loan is to produce a copy of your tax records for the past three years. The second thing you get asked is what are your projections. What are you going to do in the next year, the next three years, the next five years? What is this financial loan officer asking you? He is asking you about your sustainability. And why is he asking you that? Because he is going to be held accountable for the money he lends.

If you look at every institution that we have built up in our society you will find that these are the concepts with which we build our institutions, we manage ourselves, and with which we manage everything. Ms. Butler used the word accountability a half a dozen to a dozen times. It is a foundational concept in our legal system.

These are the concepts we need to use to build our fisheries management system. It is not the end of it. It is

the foundation. We have a lot of social and economic engineering that we need to layer in that addresses issues like what to do about this young man who wants to get into the fishery, and to address the issues of communities, of processors, and everyone else interested in and participating in fisheries.

This is the starting point—accountability and sustainability. That is what has to drive the bus—the needs of the species and the limits of the environment. Because we know, given the desires of man, we can overwhelm the species and we can overwhelm the environment. We have seen that all too clearly, all too often.

From here we go forward. Rights-based management or species-based management is the foundation. We build from here and we layer in our social and economic concerns on top of this foundation.

Richard Allen:

I am going to try and broaden this out a little bit more than we have previously, and talk about the idea of how we allocate scarce resources. When something gets to be scarce, and more people want access to it than there is available, how do we deal with that?

I am going to use a local example but I think people can relate to it. We have the Port of Galilee, a big piece of land owned by the state. We could have said here is a big piece of land and all of the residents of the state can go down and make use of it. For example, if you want to come in with your boat and tie up, you can, or whatever else you want to do. It would be open access.

But everyone realized that would not work. That would not produce the best value out of that resource that the citizens of the state had available. So we have multiple arrangements that are designed to fit the businesses that use that area. It is still open to the public in some ways, but we have multiple access arrangements down there.

The draggers have a common property regime. They have no assigned berths. They come in and tie up wherever they can find a berth. That seems to work OK for them. The lobster boats have individual dock assignments. So when they come in at the end of the day, they know where they are going to tie up, and they can keep their bait on the dock. Each year they can renew that. They have an expectation that they are going to be able to renew their lease on that dock space from the state.

The Rhode Island Lobstermen's Association has a storage lot. They were given a piece of land and they manage that piece of land for their members. Other businesses have 99-year leases. They have buildings, and they run continuous businesses with some exclusive right to some parcel of land there. They can transfer that. They can sell the business, and the right to use that land goes with that.

That is the way we have to look at the fishery situation. How are we going to get the best use for the public out of that fishery? What kind of access arrangement would make sense?

We have talked about sectors today and ITQs at other times. Some people think open access would work. I found it interesting in talking with a former president of the Point Judith Fishermen's Cooperative, who was opposed to any kind of private access rights to fisheries, when I asked why didn't we just leave the Port of Galilee open to anyone who wanted to use it? He said, "Well nobody could make an investment. Nobody could go to the bank and say this is my business plan—this is the investment I want to make to build the facility to carry on a business." I said, "Exactly."

When you think about it, it is very hard for fishing businesses to make a normal business plan and to look into the future with some security when you have no long-term secure rights. That is a big part of why we need to look at some of these arrangements.

To bring it down to fishing rather than something like land (because people say fish are different—they swim), you can look at the history of fishing allocation. If you go back to before the 200-mile limit, the open ocean was a common property with open access. Anyone from any country could pretty much come up to the shores of any other country within 12 miles or whatever the fishing limit was. And we found that did not work. So we ended up with 200-mile limits with exclusive claims by countries to the stocks close to their shores.

The next thing we did in some fisheries is we went to state-by-state quotas. It was not enough to have national control. We decided we needed to further allocate this on a state-by-state basis. In some cases we have commercial/recreational splits. Now we are talking about sector allocations. Should we have individual allocations? There is a whole hierarchy of allocations that seem to be a kind of normal progression of events.

I would suggest that we ought to be talking about allocating the actual fish stock rather than shares of the TAC in order to make a fisherman's connection to the fish stock direct and not just sharing in whatever catch someone else says is available. I hope you consider a variety of allocation systems and whether, in fact, it is a natural evolution we are seeing here.

Questions and Comments



- Q: What would the difference be between allocating a TAC and allocating a portion of the stock?

A: (R. Allen) This is kind of a new concept. What I see is the clear control that the fisherman has over his ability to improve his investment. He can make an investment in conservation without being affected by what everyone else is doing. If you are allocated a portion of the TAC, someone else is setting the TAC and saying your responsibility is to stay within that catch. If people have argued for a higher TAC than you may think is wise and you would like to conserve the stock at a higher level, under that system you have no ability to do that. If you leave fish in the ocean it just contributes to the overall next year's TAC, which is divided up among everyone else and you do not get a return on it. So there is no ability for you to conserve the stock. You can say every catch depends on some portion of the stock. Let's say there is going to be a 10 million pound catch and it took a 100 million pound stock to produce that catch and you are going to give somebody a share that is 1 million pounds of the TAC. Instead you give them 10 million pounds of the stock and say you manage that yourself and if you take too much, your stock goes down. If you leave some in, your stock goes up. It isolates everybody from the impact of others, which is one of the first things I think the Cape Cod hook fishermen were trying to do. They felt they were being conservative and other sectors in the industry were overfishing. So the sector idea was an attempt to do that without an allocation of the stock. You really cannot do that.

- Comment: I have some concerns I would like to voice. The first one is that some people may see this as another resource grab like we just witnessed with the RI lobstermen plan whereby a few of the big players in the industry, although the minority, end up with the highest share of the resource. I am one of the transitional casualties that were spoken of earlier. I did not end up too well in that. I would like to prevent this kind of thing from happening again, say with the groundfish or fluke or any species whereby an allocation system can be fine-tuned to the needs and wants of a small minority of the industry using certain gears, using certain facets of their history and so on.

My other concern is price. When you allocate a percentage of the quota to certain individuals and you do not put into it a daily limit, individuals who are fishing do not have to come in with a certain daily limit because they have a personal quota. For example, with codfish in our Days at Sea in December, we were bringing in 1,000 pounds head on. And I believe Mass. they could bring in 800 pounds head on also. But we had the hook sector bringing in considerably larger amounts a day and where we had a stable product, instead of getting a high price we got a mediocre price. Also another example I can think is because of the Days at Sea and more directly because of the daily limits, almost of Rhode Island commercial species have a fairly high price now with the exception of scup. The reason I think scup dive-bombed to \$0.50 per pound is because we have the floating fish traps that have their own personal quota and they are able to take just about an unlimited amount per day. So for part of the year you cannot give away scup. They will buy it from you as a favor.

A: (J. Hovanesian) I can sympathize with you. We have all been down the same road as far as flooding the market. The summertime fishery and the floating fish traps for scup are going to be a contentious issue. To keep the market viable and the prices up, I wonder if some of the thought process that goes into this is the history. Are they trying to land as many pounds as possible to make their history look good if when the day comes they are positioned to go into a history-based quota management scheme? I don't know but it is something to take into account. The market situation is bad. A lot of what drives the price of scup these days is that we do not have a continuous market for these things. They get shut down on a regular basis. Then there are replacements—other fish—foreign imports.

Comment: With this sector situation, we tell someone the fish belong to you—you go catch them at your own rate—instead of everyone being on the same level playing field.

Comment: Unfortunately you are dealing with a short season with that particular fish (scup). But under a sector program it does not tell you when you can land the fish. You can wait and use that to your advantage. There are other ways that this can work.

- Q: (T. Platz was asked to address the situation of a few people making a decision about the future makeup of the fishery and some people getting squeezed during the transition.) That is a danger that people need to be concerned about. It speaks volumes about fishermen needing to be involved in the

process and not sit it out. We all tend to do that. In the monkfish fishery, I started learning about the science and management and started working in the system. I would advocate that any fisherman that wants to participate start there and participate. You have to get in there and fight for your rights, and if you do not then you have to look in the mirror when you start casting blame. As far as the Rhode Island Area 2 trap allocation, I think it was unfortunate that it was a three-year qualifying period. I thought the limit by which one qualifies was quote low, more than reasonable, but it was a short window. The people who sat out those years got hurt. That seems unfortunate, and that is why I support the idea of the New England Fishery Management Council looking at a longer period for groundfish allocations.

- Q: We all acknowledge that there has been consolidation in the fishery, and there is going to continue to be consolidation especially as we go towards different privatization systems. Do you see any options for community allocation and what that might look like? Could that be part of a sector system or an ITQ system?

A: (R. Allen) I think that the opportunity is certainly there and will be allowed, but I don't think it is in the best interest of our fishermen or our communities.

A: (T. Platz) I have concerns about the politicians at the local level getting involved in fisheries management, but there are groups building up permit banks. As sectors form they are going to be interested in buying up the permits and I don't see any reason why a community that wants to invest in maintaining its fishery and its working waterfront shouldn't look at buying permits and developing a system to allocate them to their fishermen. There is nothing wrong with community activism.

A: (J. Hovanesian) We should keep an open mind to any possibility in the future with the caveat that we know the direction that we need to go. I would hate to think that one person gets thrown under the bus. We talked about accountability. I have also had the question of accountability within NMFS itself as far as when someone loses a job over a regulation that was implemented that did not need to be implemented. Where is the accountability for the person that developed the plan that made the person lose their job? We lose but they never do. There has to be accountability. All options should be open, but we should not lose sight of the fact we should be trying to make it as viable for as many people as we can, because economic destruction is not the answer.

- Q: In some cases we were trying to lay off of a species in line with stewardship. What is developing now is a penalty to that because of history-based allocations. What are your thoughts about that?

A: (R. Allen) I agree with you 100 percent. My answer would be you should have taken your allocation 15 years ago. None of us have ever had anything that was ours in the fishery in the past and the rules keep changing. We thought we were doing the right thing but you get penalized. I can see that happening with these allocations that are going to be talked about next week. I think there is a better approach that is too involved to get into here. When we first started talking about allocations and ITQs at the council level and the chair made a motion to say in 1992/3 if we ever go to an ITQ we will not use catch history from this point on. This was because the rules we are going to make then were going to change everyone's position in the fishery. It would not be fair to use catch history after that point. To use catch history at this point is troublesome.

Comment: Transitioning from the Days at Sea approach to using catch history is one of the most important parts of the discussion about sectors.

A: (R. Allen) There is a lot of self-interest involved. The people who come to the meetings are advocating for their own particular self-interests. The Australians are way ahead of us in how they deal with these things. There, the final allocation decisions are made by an independent panel that has no vested interest in the fishery. They use a retired Supreme Court justice and a couple of other folks to develop the allocation system.

A: (J. Hovanesian) A classic example of what you are talking about is the B day program with the yellowtail founder in the southeast portion of Georges Bank when they opened up that closed area. This was three summers ago. Everyone knew that closed area was full of yellowtail founder, including

NMFS. The result was that people flocked to it to use their B days, because they felt that if they did not do it they were going to lose their history. There was no money in it and it destroyed the resource. It is just now coming back. This is what we get pushed into and needs to be addressed.

- Q: (Addressed to R. Allen) Are you suggesting that we allocate inversely to one's success in the fishery going forward, and if that is the case, you probably should not have been so much the ITQ guy but the guy with the most days off wins guy.

A: I was not suggesting that you use an inverse relationship between what you caught and what your allocation is. I don't think that is politically feasible.

- Q: How can any of the sector cases presented be thought of as successful with so many boats leaving the fishery?

A: (R.Allen) If you look at the question of what is the right number of people in any particular fishery there is an assumption that the number we had in some recent year is the right number. So if there is a decline that is a bad thing. But if you went back to before we had the boom in the fleet 1970s and 1980s there would be far less. What is the right number? Should more people be coming into a fishery when the fishery is depressed? I would suggest that our fisheries got to the point where they were twice as large in the number of participants than they needed to be. So we would expect to see in a fishery that adjusted itself to the resource and there would be a lot less participants. The struggle is how do you decide who is going to be in and out. How do new people get in, and all of those things. But I do not think we are going to see the fishery go back to the kinds of numbers we saw at the height of participation.

A: (T. Platz) We are going to see consolidation regardless of the management plan. It is inevitable. It is a consequence of overcapitalization. In the cod hook fishery they are having a hard time getting their hooks down on the cod. It is not a matter of cod not there, and not that the sector is shrinking the number of fishers that can make it. It is a product of the hook fishery. A number of those guys have gotten out and went into the gillnet group. I do not see that as a byproduct of a sector. One of the interesting things I have gotten out of the sector discussion today is that it seems to empower fishermen at the secondary level—at the value-added level of their product. Fishermen, in connection with sector management, are looking at moving and marketing their product. Fishermen are difficult to organize and get together on pretty much anything. Sectors, and a quota system in general, are going to bring fishermen together into groups that create power. You are part of a larger group that has some clout. There is power in numbers. There are some advantages to sectors that will empower fishermen.

A: (J. Hovanesian) There is a move afoot to reduce the number of people operating. Maybe that is what needs to be done. But until we know for sure that it does need to be done, the science right, and there is some independent review of the numbers being generated, I caution taking the approach. I hate to think that we are going to put people out of business for no reason.



G. Next Steps

In the last session, Andrew Kitts, NMFS, moderated a discussion focused on the question of where do we go from here, using the discussion as an opportunity to identify resources that fishermen, managers, policy decision-makers, and others might utilize in considering sector allocation as a management tool. The resources that were identified are summarized below.

Summary of Discussion

Andrew Kitts—Where do we go from here?

In workshops such as these it becomes apparent that fishermen who are thinking about forming a sector could have information needs. They may generate questions such as how would they form a sector? Why would they want to in the first place?

I see this as an opportunity to identify some resources to help them, and not only financial resources but also expertise. One thought would be to develop some kind of clearinghouse to provide groups of fishermen with examples of environmental assessments or contracts from groups who have already done this, along with policy guidance and information on problems with regulations. In addition, members of existing sectors need information about monitoring, and policy makers have information needs as well as the policy is evolving. One approach to meeting those information needs might be to develop a “How To” type of manual on sectors.

Summary of ideas shared on available resources:

Cindy Smith, Gulf of Maine Research Institute, Portland, Maine

- The Gulf of Maine Research Institute (GMRI) has offered technical assistance to any group in Maine or New Hampshire that is interested in forming a sector. We also are on the verge of hiring someone to offer that same technical assistance to Massachusetts, Rhode Island, and Connecticut fishermen, and possibly beyond. The technical assistance involves helping fishermen get lined up with the legal assistance they need, and GMRI has funds to help with that. GMRI also offers reviews of business plans, and help with the environmental assessment and operations plan.
- GMRI is also close to hiring consultants to do an analysis of the existing data collection system of NMFS, and to develop recommendations for a new monitoring system. GMRI is committed to developing that monitoring system for sectors.
- GMRI will be offering training for sector managers on the administrative requirements, the operations plan, the environmental assessment, and the monitoring and reporting requirements. We have not set that up yet but it will be coming.
- GMRI is also exploring the opportunity of offering some training on the National Environmental Policy Act for those who are going to have to write environmental assessments for sectors for submittal to NMFS. We are working with NMFS on that.
- For more information, I can be contacted at my e-mail address: csmith@gmri.org.

Vince O’Shea, Atlantic States Marine Fisheries Commission

- About five years ago, with the state-by-state quotas for black sea bass, Virginia implemented a state ITQ system for their sea bass fishermen. The fact that they continue to renew it each year speaks to the value the participants in the system have seen in that. There are winners and losers and there are people who do not like that, but as you go through this exploratory phase I recommend that you talk with some of the fishermen down in Virginia who fish under that system.

Amy VanAtten, NMFS, Fisheries Sampling Branch

- We heard over and over that the science is lacking and the data collection is lacking.
- Some \$13 million a year is spent to collect Observer Program data, and that data is available to fishermen. I encourage fishermen to use that source of data as you are forming your sectors.
- Also there is an International Fisheries Observing Conference that will be held in this area next year.

That will be a great source of information for people who are forming sectors. I am on the steering committee for that. For more information, you can contact me at my e-mail address: amy.van.atten@noaa.gov.

George Darcy, NMFS, Sustainable Fisheries Division

- We have been working with the New England Fisheries Management Council and the council's committees to support them in going forward with sectors or other management tools and will continue to do that.
- We are in the process of recruiting a new sector person to our staff to provide better support to existing sectors and any future sectors. Tom Warren on my staff is here. He is working with sectors. We are talking with Cindy Smith and with some of the prospective sector managers. We are trying to get them up to speed and offer advice as best as we can.

Kathleen Castro, Rhode Island Sea Grant Program

- In general, as different options come up, we are a resource. If you need information, we will look all over the world for it, and we can convene meetings such as this to discuss these options.

Eric Brazer, Cape Cod Commercial Hook Fishermen's Association

- I am the sector manager for one of the Cape Cod sectors. Jan Margeson (member of Georges Bank Cod Fixed Gear Sector) and I are available to talk with others about what has worked, and what has not worked. Please feel free to use us as a resource.

H. Summary

Sector allocation is a management option currently under consideration by members of the fishing community, managers, and environmentalists alike, particularly in the New England region. The two-day workshop summarized in the previous pages provided an important opportunity for participants from a diverse group of backgrounds to come together to learn more about this management tool, and some of the potential benefits and costs associated with its implementation. Sector allocation was reviewed within the context of recent and pending New England Fishery Management Council actions, and Limited Access Privilege Program (LAPP) provisions under the Magnuson-Stevens Fishery Conservation Management Reauthorization Act of 2006. Legal and enforcement considerations, and the potential application of sectors to the recreational fishing community, were also reviewed, along with the general advantages and disadvantages of rights-based management approaches. Perhaps most importantly, the workshop provided participants with the opportunity to examine the lessons learned from case studies of sectors in operation on Cape Cod and in the Shetland Islands.

Some of the major concepts shared during the presentations at the workshop included the following:

- ***Existing problems:*** Alternative management approaches such as sector allocation are being considered in response to the problems associated with the existing quota management approach that relies heavily on input controls. Days at Sea and trip limits are not achieving results in terms of biomass rebuilding, and are resulting in a large amount of discards, business inefficiencies, and lost market opportunities. And in some cases, safety-at-sea issues have been raised in connection with the race to fish that current regulations promote.
- ***Terminology:*** Rights-based management discussions include a variety of terms (Individual Fishing Quotas/Individual Transferable Quotas (IFQs/ITQs), Dedicated Access Privilege, LAPPs, Limited Access System, and quotas issued to fishing cooperatives, fishing communities, regional fishery associations), each with its own definition and legal distinctions. The question was raised of whether sectors, as they are being applied in the New England region, are LAPPs subject to the LAPPs provisions in the Magnuson-Stevens Fishery Conservation Management Reauthorization Act of 2006. The interpretation given in response is that there is nothing in the act that precludes regional councils from considering sectors as a management tool, but councils need to define how they will function and how they are to be used to accomplish the goals of fishery management plans.

- **Similarities and differences:** There are similarities and differences between sectors and different types of LAPPs (IFQs/ITQs, community quotas, and quotas issued to regional fishing organizations) when the factors of allocation, transferability, management responsibility, and provisions for new entrants are considered. In terms of advantages, IFQ/ITQs, community quotas, and quotas to regional fishery associations and sectors all recapture rents, align economic and conservation incentives, and reduce regulatory complexity. Community quotas, quotas to regional fishery associations, and sectors allow for a greater balance of social and economic goals, local decision making, and allow for a mixed management approach. In terms of disadvantages, IFQ/ITQs, community quotas, and quotas to regional fishery associations and sectors all force allocation issues, and increase catch monitoring and tracking costs, and IFQ/ITQs result in a high cost of quota market and an all-or-nothing situation. Community quotas, quotas to regional fishery associations and sectors result in organizational costs, require NMFS to keep track of varied plans, and common-pool vessels are forced into a de facto sector as more sectors form.
- **Council actions:** The New England Fishery Management Council has adopted a series of general policy guidelines for sectors to be used by committees in the process of developing species fishery management plans, and currently has some 17 sector proposals before it for consideration. The council is in the process of trying to respond to these proposals as part of the process for Amendment #16 to the Groundfish Fishery Management Plan. Key issues under consideration include allocation, transferability, monitoring, and the recreational fishing factor. The Mid-Atlantic Fishery Management Council has not yet adopted general policy guidelines for sectors, but the subject of sectors has come up in relation to the squid, mackerel, butterfish, and tilefish fisheries.
- **Legal considerations:** Findings from the Maine workshop entitled “Cooperative Harvesting Agreements Workshop for New England Groundfish Fisheries” held November 1-2, 2007, indicate that in forming sectors, fishermen should keep initial sector agreements as simple as possible, avoiding marketing areas in order to avoid antitrust problems; keep sector groups on the small size with members having similar interests and goals; be able to raise revenues to cover legal and accounting costs; and develop membership agreements that address who gets to be members, how quota will be allocated among members, how catch monitoring, enforcement and penalties, and internal decisions will be handled, and whether inter-sector trades of quota will be allowed.
- **Enforcement considerations:** A move to sector allocation as a management approach may require additional training of weighmasters and U.S. Coast Guard personnel. Self-policing among sector members will be important, as well as continual communication between sector managers and enforcement authorities, and between the U.S. Coast Guard and NMFS. Use of the Vessel Monitoring System will be critical to easing the job of both NMFS and the U.S. Coast Guard.
- **Application to recreational fishing:** There is the potential to extend the concept of sectors to the recreational fishing community through LAPPs for charter boats, development of angling management organizations, or through the use of fish tags as an allocation method. Recreational anglers would have to see some benefit for them to want to organize and develop such sector agreements. There could be the potential for significant increases in economic value of fisheries if there is a better integration of recreational and commercial management.
- **Potential for rights-based management:** Results from the study conducted in 2006 by Environmental Defense and the Redstone Strategy Group on 10 existing catch-share programs in the United States and Canada indicate that after catch-share programs were implemented, catch limits were obeyed, biomass estimates improved, bycatch decreased, there was less damage to ecosystem habitat from less time spent deploying gear, revenues went up, and employment stabilized. The study also indicated there was some consolidation of the fleet and some changes in individual port landings, along with minimal changes in quota concentration and ownership.

As the case studies of the Georges Bank Cod Hook Sector, the Georges Bank Cod Fixed Gear Sector, and the Shetland Fish Producers Organisation indicate, the circumstances and driving factors in forming sectors may differ. In the Cape Cod examples, the major driving factors in the formation of the sectors were the waste problem associated with discards and business inefficiencies. Fishermen were seeking relief from daily catch limits, and wanted to develop fishing rules that more closely matched the way they fished and that resulted in less waste. Specifically, they were seeking to land what they caught and then stop fishing.

In the case of the Shetland Fish Producers Organisation, the Producer Organisation, which functions as a sector group, first came about as part of a marketing support structure for fisheries products. It then evolved into the area of sector management, deciding how to fish an allocation portion of the total allowable catch (TAC) or

quota for the United Kingdom issued through the European Union processes. The system in the Shetlands has helped provide flexibility for members and match fishing opportunities with quota allocations.

As the question-and-answer sessions and small group discussions over the course of the two-day workshop illustrated, there are advantages and disadvantages to a sector-allocation approach. Some of the advantages that participants raised included:

- Industry would be more involved in management and would have more clout;
- Increase in daily profits;
- Decrease in high grading;
- More opportunities for information sharing and self-policing among industry members;
- Safety-at-sea issues could decrease as fishermen have more choice on when to go to sea;
- Opportunities for eco-labeling (resulting from fishing sustainably and staying within the TAC); and
- Better prices and a more steady supply of fish to the marketplace.

Some of the disadvantages that participants raised included:

- Financial risk (members having to contribute to start-up and administrative costs of forming and running a sector);
- Fishermen having to decide to be in or out with no half-way point;
- May not be very advantageous to a fisherman to be part of the “common pool”;
- Data is insufficient, making it hard to make good decisions;
- Difficulties involved in ensuring accountability;
- Difficult allocation decisions;
- Hard to apply sector concept to management of multi-species and being limited by weakest species; and
- Difficult to provide for new entry if it is too costly to gain access to quota.

Those engaged in the process of fisheries management in the New England region, as elsewhere, face stiff challenges in terms of rebuilding declining fish stocks and reducing bycatch, along with business inefficiencies, safety risks, and competing in an increasingly global market. There is the added challenge of building a sustainable, viable fishing industry that offers an attractive career option for young fishermen with a reasonable means of access.

While sector allocation may provide a more flexible way to manage fisheries and meet some of these challenges, the bottom line with which most workshop participants seemed to agree is that sector allocation is not a “silver bullet” or cure-all but simply one more tool in the management toolbox that should be carefully examined. Moving forward with this tool will require careful consideration of issues surrounding allocation, enforcement, monitoring, issuance of penalties, multi-species applications, the adequacy of the initial database, and the capacity among fishermen to organize and administer sectors.



Participants

FIRST	LAST	EMAIL	AFFILIATION
Dick	Allen	rballen@cox.net	URI
George	Allen	gsallen3@verizon.net	RIMFC
Katie	Almeida	katie.almeida@noaa.gov	REMSA
Chris	Anderson	cma@uri.edu	ENRE - URI / RIMFC
Eric	Anderson		Fisherman
Walter	Anoushian	walter.anoushian@noaa.gov	NMFS Port Agent, NOAA / NMFS
Stephen	Arnold	steve_sherry4@verizon.net	Kingston Trawlers, Inc.
Rodney	Avila	rodavila@comcast.net	NEFMC & Fisherman
Nancy	Balcom	nancy.balcom@uconn.edu	Connecticut Sea Grant
Bob	Ballou	Robert.Ballou@dem.ri.gov	RIDEM
Crista	Bank	cbank@umassd.edu	
Adam	Barkley	u_abarkley@umassd.edu	Fisheries Graduate Research Assistant, SMAST
Rollie	Barnaby	rollie.barnaby@unh.edu	UNH / New Hampshire Sea Grant
Bob	Beresford	bkiwibear@cox.net	RI Commercial Rod & Reel Club
Sarah	Bland	sarah_bland@mail.uri.edu	URI
Deirdre E.	Boelke	dboelke@nefmc.org	NEFMC
Kate	Bonzon	kbonzon@environmentaldefense.org	Environmental Defense
David	Borden	lizzy2@cox.net	Massachusetts Division of Marine Fisheries
Eric	Brazer	eric@ccchfa.org	CCCHFA
Chris	Brown	gvdwood@cox.net	RICFA
Mark	Buron	markb@easternfisheries.com	Future Fisheries
Elizabeth	Butler	ebutler@pierceatwood.com	Pierce Atwood LLP
Tim	Caldwell	tmc@mainelywired.net	Fisherman
Vincent	Carillo Jr.	Kahunafish2@aol.com	President, Tenacious Fishing Corp & Kahuna Fisheries Inc
Kathy	Castro	kcastro@uri.edu	URI / RI Sea Grant
Michelle	Cho	mcho@neaq.org	New England Aquarium
Douglas	Christel	douglas.christel@noaa.gov	Fishery Policy Analyst, NMFS, Northeast Regional Office
Russell	Cleary		Commercial Anglers Association
Antoinette	Clemetson	aoc5@cornell.edu	New York Sea Grant
William	Coffey	wcoffey@rwu.edu	Roger Williams University / RI Sea Grant Legal Program
Edwin	Cook		RIMFC
Barry	Costa-Pierce	bcp@gso.uri.edu	Rhode Island Sea Grant
Ken	Court	kcourt@cox.net	RI Party & Charter Boat Assoc.
George	Darcy	George.Darcy@noaa.gov.	Asst. Regional Administrator, NMFS
Kristin	Decas	Kristin.Decas@newbedford-ma.gov	Executive Director, New Bedford Harbor Devel. Commission
Lt. Rula	Deisher	Rula.F.Deisher@uscg.mil	USCG Fisheries Enforcement
Glenn	Delaney	grdelaney@aol.com	Consultant, Northeast Seafood Coalition
Jason	Didden	jdidden@mafmc.org	Assistant Fishery Plan Coordinator, MAFMC
Greg	DiDomenico	gregdi@voicenet.com	Garden State Seafood Association
Harriet	Didriksen	nbss.nbship@verizon.net	
Aaron	Dority	aaron@penobscoteast.org	Director, Penobscot East Resource Center
Jon	Dority		Commercial Fisherman
Brian	Doyle	Brian.Doyle@unh.edu	Program Leader, Sea Grant Extension, NH Sea Grant

FIRST	LAST	EMAIL	AFFILIATION
Julie	Early	islandfdn@earthlink.net	Island Foundation
Syma	Ebbin	syma.ebbin@uconn.edu	University of Connecticut
Dave	Ellenton	dave@capeseafoods.com	Cape Seafood
Ronald	Enoksen	Ronnie@easternfisheries.com	Manager Future Fisheries
Ronald	Enright		RI Commercial Rod & Reel Club
Jake	Everich	jeverich@gmail.com	
Susan	Farady	sfarady@oceanconservancy.org	Ocean Conservancy
Rich	Fuka	captlobster@yahoo.com	RIFA
John	Gadzik		Commercial Rod & Reel Club
John	Gates	jgates@uri.edu	Professor, ENRE - URI
Daniel	Goethel	dgoethel@umassd.edu	UMASS
Glenn	Goodwin	glenn3@verizon.net	Seafreeze, Ltd.
Mark	Grant	mark.grant@noaa.gov	Fishery Management Specialist, NMFS
Rob	Griffin	rgri7673@postoffice.uri.edu	URI
Pat	Grochini		Fisherman
Madeleine	Hall-Arber	arber@mit.edu	Anthropologist, MIT Sea Grant
Phil	Haring	phil.haring@nefmc.org	NEFMC Staff
Peg	Harrington	peg_harrington@usa.net	Pew Environmental Trust
John	Hoey	john.hoey@noaa.gov	NMFS
Mark	Holliday	mark.holliday@noaa.gov	Supervisory Policy Analyst, NMFS
Richard	Hopkins	eelman1@verizon.net	Commercial Fisherman
Joel	Hovanesian	jhovanesia@cox.net	RIFA
Peter	Hughes	phughes@atlanticcap.com	Atlantic Cape Fisheries, Inc.
Brian	Isbister	brian@shetlandfishermen.com	Shetland Fish Producers' Organisation LTD
Robert	Johnston	robert.johnston@uconn.edu	Connecticut Sea Grant
Jeff	Kaelin	jhkaelin@maine.rr.com	NE Fish Company
Caroline	Karp	Caroline_Karp@brown.edu	Center for Environmental Studies, Brown University
Chris	Kellogg	chris.kellogg@nefmc.org	NMFS
Lt Tony	Kenne	Anthony.J.Kenne@uscg.mil	USCG Fisheries Enforcement
Ken	Ketcham	ketchfish54@aol.com	Commercial Fisherman
Jody	King	liana@cox.net	Commercial Fisherman
Drew	Kitts	andrew.kitts@noaa.gov	NMFS
Peter	Klenk		Trawlworks
Elizabeth	Kordowski	elizabeth.kordowski@noaa.gov	Port Agent, NOAA / NMFS
Mark	Lambert		Fisherman
Ken	LaValley	Ken.LaValley@unh.edu	NH SeaGrant / UNH Cooperative Extension
Jennifer	Litteral	jlitteral@islandinstitute.org	Island Institute
Mike	Marchetti	fvcaptainrobert@aol.com	Fisherman
Jan	Margeson	weeziem@comcast.net	CCCHFA
Chris	McCarron	christopher.mccarron@noaa.gov	NMFS Enforcement
Sally	McGee	smcgee@environmentaldefense.org	Environmental Defense
Jason	McNamee	jason.mcnamee@dem.ri.gov	RIDEM
Geir	Monsen	geir@seafreezeltd.com	Seafreeze, Ltd.

FIRST	LAST	EMAIL	AFFILIATION
Peter	Moore	petejmoore@aol.com	American Pelagic Association / New Bedford
Umi	Muawanah	awanits20@yahoo.com	Graduate Student, ENRE - URI
Jackie	O'Dell	jackieodell@yahoo.com	Northeast Seafood Coalition
Cate	O'Keefe	cokeefe@umassd.edu	Research Technician, UMASS Dartmouth SMAST
Mary	O'Rourke		Trawlworks
Vince	O'Shea	wmost@asmfc.org	Executive Director, ASMFC
Stephen M.	Ouellette	fishlaw@aol.com	Maritime Law
Sarah	Pautzke	spautzke@nefmc.org	NEFMC
Margaret	Petruny Parker	pparker@cox.net	URI / RI Sea Grant
Patricia	Pinto da Silva	patricia.pinto.da.silva@noaa.gov	NMFS
Ted	Platz	theoplatz@yahoo.com	Owner / Captain, Ocean Harvest, Inc.
David	Preble	fishearlybird@cox.net	NEFMC
Phil	Ruhle	fvseabreeze@cox.net	Fisherman
Mark	Sasse	mark.sasse@citizensbank.com	
Nancy	Scarduzio	nancy.scarduzio@dem.ri.gov	RIDEM
Gwynne	Schnaittacher		Program Manager, AIS Inc
Gerard	Shepherd	jshepri@cox.net	
Deb	Shrader	debondock@aol.com	Shore Support, Inc
Laura	Skrobe	lskrobe@uri.edu	URI / RI Sea Grant
Cindy	Smith	csmith@gmri.org	Gulf of Maine Research Institute
Robert	Snyder	rsnyder@islandinstitute.org	Island Institute
Barbara	Somers	barbs@uri.edu	URI / RI Sea Grant
Craig	Stevens	giantbluefin1@yahoo.com	RI Commercial Rod & Reel Club
Nils	Stolpe	nilsstolpe@cgl.rr.com	Monkfish Defense Fund
Rodman	Sykes	CRFisheries@verizon.net	RICFA
Luke	Szymanski	luke@aisobservers.com	AIS Inc
Emi	Uchida	emi@uri.edu	Assistant Professor, ENRE - URI
Hirotsugu	Uchida	uchida@uri.edu	Assistant Professor, ENRE - URI
April	Valliere	april.valliere@dem.ri.gov	RIDEM
Amy	VanAtten	amy.van.atten@noaa.gov	Coordinator for Observer Program, NOAA, NMFS
Jim	Violet	jjv89@msn.com	
Tom	Warren	thomas.warren@noaa.gov	Fishery Policy Analyst, NMFS
Bob	Wescott	fvoceanstate@gmail.com	F/V Ocean State
Glenn	Wescott		
Al	West	al.west@connors.ca	Director of Purchasing, Stinson/ Bumble Bee Foods
Sara	Wetmore	swetmore@mercury.wh.who.edu	NEFSC
Jim	White	whiteghos1@aol.com	RI Party & Charter Boat Assoc.
Aaron	Williams		
Tom	Williams		
Chris	Zanni	chris.zanni@noaa.gov	NMFS Contractor