N.H. Sea Grant Research Project Completion Report

Today’s date: May 15, 2015

Project number: RR/SSS-5

Project title: Social and economic impact assessment of catch share management in the Northeast multispecies fishery

Project initiation date: 2/1/2012

Project completion date:

Principal investigator: Christopher Glass

Affiliation: UNH/EOS/OPAL

Associate investigator(s) and affiliation(s):
Rachel Feeney, UNH/EOS/OPAL

Technicians and affiliations:
Natalie Waltner, unaffiliated

Partner(s) and affiliation(s) (List any collaborators, sponsors, industry partners, municipalities, etc., associated with this project):

NOTE: For each partner, include SCALE (local, state, regional, national, international) and TYPE (gov’t, NGO, industry/business, academic institution, other)

Dr. Julie Olson, Northeast Fisheries Science Center
Dr. Madeleine Hall-Arber, MIT Sea Grant College Program
Christopher Kellogg, New England Fishery Management Council
Dr. Kenneth La Valley, UNH/NH Sea Grant and UNH Cooperative Extension
Dr. Joshua Wiersma, Northeast Fishery Sectors XI and XII

Brief project overview/Abstract:

To evaluate whether the multispecies (groundfish) catch share fishery system (i.e. sectors) in the Northeast US is achieving theorized benefits, there must be evaluations of biological, social, and economic impacts. This research is testing theories generated about catch shares, examining their validity and limits relative to sector management in New England commercial multispecies fisheries. The New Hampshire commercial fishery is the focus of this case study. The primary research question is: Has the advent of commercial multispecies sectors in New England impacted fishing practices, social capital and bycatch in the New Hampshire fishery? Northeast Fishery Sectors XI and XII, comprised of multispecies fishermen in New Hampshire, are the particular focus of research, but broader applications of conclusions are considered. Quantitative and qualitative information is being gathered primarily by one-on-one interviews with individuals from New Hampshire, including current New Hampshire sector fishing permit owners, non-sector fishermen, former fishermen, and fish dealers. It is hypothesized that fishing under the control rules governing sectors has resulted in reduced bycatch in the fishery; more flexibility for fishermen to decide where, when, and how to fish; and greater collaboration among
fishermen in the conduct of business and bycatch reduction. The applicability of the NH-based results to the broader region will be determined, as well as causes of variation.

Objectives:

1. Measure quantitative and qualitative changes that have occurred relative to the Northeast multispecies sector program that relate to fishing practices, social capital and bycatch;
2. Focus on the New Hampshire fishing industry, but determine the applicability of the results to the Northeast multispecies generally; and
3. Involve a multi-stakeholder team to collect data, conduct the analysis, and then disseminate the results to end users, particularly in the management and fishing arenas.

Final research findings:

Data coding and analyses are complete. Results have been shared with all project participants. Also, see attached documents.

**SUMMARY – Fishing practices**
The informants expressed a variety of opinions about which program, DAS or sectors are more efficient and flexible for their fishing operations, and there was not strong agreement in the data. Those who felt that sectors were more efficient generally felt that the removal of trip limits and having an annual allocation to fish, allowed for more concentrated effort, harvesting up to their limits with fewer trips. Those who are more dependent on groundfish for their income did not necessarily feel that one program is an improvement over another, though the data suggests that the informants with larger vessels may tend to feel that sectors is the more efficient for them, that they can take advantage of the lack of trip limits better than before. The smaller-scale operations saw less impact of no trip limits. There were no substantial changes in crew employment overall. Most of the informants did not make any particular changes in their gear since FY 2009, though some have experienced increased gear loss. While some vessels used to make two-day trips, informants indicated that they are generally all taking one-day trips now. Most informants are experiences either no change in area conflicts or increases as new groundfish vessels move into their fishing area or stationary gear takes up more fishing areas with declines in mobile gear. Regionally, employment and effort has dropped in the fishery through time and there is some evidence that those who have remained in the fishery are perhaps the more efficient operators.

**SUMMARY- Social capital**
There is some evidence that sectors increased social capital, but it is not a strong conclusion, as there is also evidence that social capital is not dependent on sectors, and that in some ways, sectors reduced social capital. Sector informants do not appear to be more inclined to voluntarily join trade organizations than other informants. Sector informants do tend to lend equipment and share information on fishing areas and catch than others. There is little evidence that the informants are using social capital to coordinate fishing areas to reduce gear conflicts or bycatch. Though many felt that supporting the NH community was important, it was not uniform. It appears that the selection of the specific sector that an informant joined was determined in part by the level of social capital that already existed with fellow industry members. Sectors can build on whatever social capital may already
exist within the industry. There is no particular set of traits that distinguish high-from low-social capital informants. Perhaps this could be investigated through research with a larger sample size.

**SUMMARY – Economic performance**

Catch share programs semi-privatize a common pool resource. Quota holders have the privilege to harvest a set quota of fish when and how they see fit, but lack ownership of the fish and the ability to decide the total catch limit (NRC 1999). Shares are often gifted to persons who can prove recent participation. Shareholders can experience economic benefits by participating in the fishery, actively fishing and/or leasing quota. They can also reap a one-time gain by selling their shares. Those with ready access to sufficient capital can accumulate wealth by leasing in or permanently buying additional quota. In theory, where shares are tradable, they will go to the most efficient producers, and the excess capital and labor in the fishing industry will be redistributed to other parts of the economy (Wingard 2000).

This macro-scale view is a stark oversimplification of the socioeconomic dynamics of a fishery. It reduces fishermen to rational actors, with undifferentiated economic needs and social relationships. Motivations and connections in the industry and their communities are complex. Some of the New Hampshire fishermen are recognizing a transformation in the business climate of the groundfish industry. There is now more focus on maximizing one’s utility. Although a vessel may have very efficient operations, the business may not be viable if leasing quota is required. Entering credit markets exposes fishermen to great risk, and as an alternative, a non-harvesting sector of shareholders is emerging, like it has in the mid-Atlantic surfclam and ocean quahog fishery. After nine years of its ITQ program, 60% of the firms were non-harvesters (Brandt 2005).

Wingard (2000) identifies several externalities that catch shares can generate that may be relevant to the Northeast groundfish fishery. To maximize benefits, fishermen must be able to plan in advance, but with the uncertainty of groundfish ACLs, that is rarely possible. With the level of scientific uncertainty that persists with the Northeast groundfish stocks, efforts to harvest within an ACL may be in vain if ACLs managers unknowingly set ACLs too high. With the high cost of leasing, some fishermen may be discarding legal fish at sea when unobserved, undermining the long-term yield from the fishery. Catch shares may decrease effort in one fishery only to increase effort in another. Administering a catch share program requires substantial public resources, a cost that is born by the taxpayer. Consumers of fish bear the cost of price increases.

**SUMMARY - Safety**

The informants indicated, overall, that the advent of the catch share program has resulted in no major changes in safety, because the informants largely strive to be safe no matter the management program. However, removal of trip limits for sectors has brought a degree of flexibility and less pressure to fish in unsafe conditions, while the trimester approach to managing the common pool, is making the common pool members choose between fishing more in winter months versus potentially forgoing catch.
SUMMARY - Well-being
The major theme that emerged is that there is less well-being among the fishermen today than before introduction of catch shares.

CONCLUSIONS
Where a reduction in fishery effort is required to achieve the long-term efficiency of an industry, catch shares may be a justifiable approach. In the interim, there are social and economic ramifications that should be kept in mind. Consolidation occurring in the groundfish fishery may be at least proportional among ports, gear types and vessel sizes. This is without any direct fleet diversity measures. It may be that the groundfish sector structure is acting as a buffer against significant redistribution of wealth, at least for the near-term.

The New Hampshire commercial fishery has continued to evolve since the field work for this dissertation concluded in 2012. Despite the successes of efforts to locally market fish through New Hampshire Community Seafood, the persistently low catch limits as forced a number of tough changes. One informant, a sector member who at the time of the interview had his vessel and permits for sale, did find a buyer. He is now a former fisherman, but has stayed involved with the industry, managing an industry organization. Now in FY 2015, NEFS XI and XII are down to just six or seven active fisherman, no longer landing enough fish to employ a full-time sector manager. The individual serving that role was able to move on to other employment in the field of fisheries policy advocacy. The new part-time sector manager has also managed another sector based in Southern New England, which works well because the respective memberships tend to be active at different times of year.

Accomplishments (Accomplishments are the key actions, activities or products resulting from Sea Grant research projects. They are distinct from impacts in that they reflect ongoing activities or key results that may not yet have had a significant economic, societal and/or environmental benefit but lay the foundation for such a benefit. Accomplishments may evolve into impacts in the future.)

- Conducting this research within the New Hampshire fishing community has helped some of the fishermen feel like their voice and experience is important.
- Informal conversations are occurring between project investigators, partners, and fishery managers that are informed by the data and preliminary results.

This project has:
- Demonstrated whether the implementation of sectors has indeed resulted in lower bycatch, more flexibility and efficiency, and greater collaboration in the NH multispecies fishery.
- Established a benchmark to help track changes in the multispecies fishery over time.
- Determined the applicability of impacts to NH fishing communities to the broader region.
- Increased the capacity for fishermen to make business decisions and successfully operate within the sector allocation framework.
- Increased the engagement and understanding of stakeholders and the NEFMC regarding the community impacts of catch shares and how to modify catch share programs to achieve goals identified.
Impacts (Impacts are significant economic, societal and/or environmental benefits of research.):

NOTE: Include quantitative data to validate the impact, if possible.

This project has:

- Forwarded the regional priority of identifying the impact of catch share management in the Northeast multispecies fishery.
- Improved understanding about impacts that have occurred since the move from Days-at-Sea to a catch share allocation management program in the Northeast multispecies fishery, and how this policy has impacted the New Hampshire fishing community specifically.
- Provided data on the biological and human dimensions of fishing to improve decision-making among managers and other fisheries stakeholders.
- Engaged stakeholders by contributing input on the impacts of and potential improvements to catch share management programs.
- Provided the fishing industry, managers, and other stakeholders with a basis from which to evaluate the success or failure of this transition moving forward.
- Enhanced the regional capacity to develop predictive models, for better business and sustainability planning for the fishing industry and fishery management.

This project has provided many benefits to the New Hampshire fishing industry specifically:

- Established a better understanding of the dynamics of fishing that will be very important to fishermen in business planning for the future.
- Sector operations are likely to improve in efficiency and efficacy resulting from this in-depth analysis of sector performance.
- Although the research is a detailed examination of New Hampshire, fishermen from other sectors in New England and the region as a whole will benefit from the research and lessons learned from this case study.

Economic benefits realized (businesses retained or created, jobs retained or created, market and non-market economic benefits):

NOTE: Please quantify and provide supporting data if possible.

So far, the project has helped sustain the businesses of the fishermen interviewees who opted to accept the stipend for their participation. To the degree that project results are used to better fisheries management, this project will have long-term benefits for society.

Tools, technologies or information services resulting from this project that were developed or used to improve ecosystem-based management (i.e., products that address the management of land, water and living resources in coastal areas, for example that reduce contaminants that harm coastal ecosystems and seafood consumers; that track changes in ecosystem processes, biological responses and conditions, etc.):

NA

Patents:
Technology transfer (Has a private company used this research successfully?):

It is hoped and expected that fishermen will use the results to be better informed about their community and the impact of fisheries management, which could lead to more informed decision-making by businesses.

Related grants and contracts (Other grants and contracts that funded this research or that were obtained as a result of this research):

NA

Leveraged funding (leveraged funding comes from outside sources and is used to accomplish the goals and objectives of your project. Match associated with your project is not leveraged funding). Provide amount, source, purpose, and start and end date.

NA

Problems encountered:

There were no problems encountered during the reporting year.

Publications

NOTE: Please cite and attach PDF or send a hardcopy, or provide possible title, authors, etc. and status if not yet published.

Peer reviewed publications:

At least three peer reviewed papers will be submitted for publication as a result of this work.

Theses/Dissertations:


Other communications products (non peer-reviewed pubs, manuals, tech reports, videos, etc.):

None to date

Presentations to date, with published abstract citation if applicable:

NOTE: For presentations to civic groups, etc. (i.e., to the public rather than a scientific conference), please include number of attendees.

None to date

Students supported (see next page) All fields are required
## Students Supported  *All fields are required*

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<tr>
<th>Student Name</th>
<th>Institution</th>
<th>Cont’d or New for 2014?</th>
<th>Where is he/she now?</th>
<th>Dates of support</th>
<th>Type of degree: Undergrad Master’s PhD</th>
<th>Year degree awarded</th>
<th>Title of thesis (if supported by N.H. Sea Grant)</th>
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