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A Study of the Social and Economic Capacity of Eastern Maine Fishing Communities: How Can Small-Scale Fishing Communities Participate in Catch Share Programs?

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Final Report:

A Study of the Social and Economic Capacity of Eastern Maine Fishing
Communities: How Can Small-Scale Fishing Communities Participate
in Catch Share Programs?

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Project Title:

“A Study of the Social and Economic Capacity of Eastern Maine Fishing Communities: How Can Small-Scale Fishing Communities Participate in Catch Share Programs?”

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Brief Project Summary:

This study aimed to assess the degree to which small-scale, fishery-dependent communities in eastern Maine can participate in the catch share system for New England groundfish. Catch share programs can take on a variety of forms, including: harvesting cooperatives, individual quotas, individual transferable quotas, or territorial user fishing rights (Holland and Wiersma 2010). In New England the regional Fishery Management Council implemented a catch share program beginning in 2010, known as sectors, where portions of the total allowable catch have been allocated to groups of fishermen. As managers continue to develop catch shares, and stocks hopefully rebuild, it is critical to assess the degree to which small-scale, fishery-dependent communities, like those in eastern Maine, can participate successfully in this management system. This study asks the following question: What is needed for fishery-dependent communities in eastern Maine to participate in the New England groundfish catch share system? Our approach was to first document the current and historical participation of Eastern Maine fishermen in the groundfish fishery through a rapid assessment and oral history interviews and then consider how the current catch share system in place creates barriers and opportunities for future participation by these communities.

This project was a collaboration between the Principal Investigators and Penobscot East Resource Center and the College of the Atlantic. We adopted a mixed method approach (Creswell 2009), including secondary data analysis, rapid assessment (Pido 1995), focus groups (Kruger and Shannon 2000), oral history interviews (Ritchie 2003, Colburn and Clay 2012), and semi-structured interviews (Bernard 2005). Our focus was on the communities in eastern Maine currently or historically engaged in the New England groundfish fisheries. This region represents

approximately half of Maine’s coastline, and it includes the two easternmost coastal counties in the U.S., plus four islands in Knox County. We focused on the following communities for investigation: Vinalhaven, Stonington, Bar Harbor, Northeast Harbor, Southwest Harbor, Bass Harbor, Swan’s Island, Steuben, Winter Harbor, Gouldsboro, Milbridge, Jonesport, Beals, Bucks Harbor, Lubec, and Eastport (Table 1).¹

	2010 Population	% Change from 2000-10	Median Age	# Groundfish permits
Vinalhaven	1,165	-5.7	45.1	6
Stonington	1,043	-9.5	50.7	3
Southwest Harbor	1,764	-10.3	48.4	2
Swans Island	332	1.5	46.3	1
Bar Harbor	5,235	8.6	45.3	2
Northeast Harbor	2,053	-2.7	50.7	0
Bass Harbor	1,563	2.2	49.2	4
Winter Harbor	516	-47.8	51.1	5
Gouldsboro	1,737	-10.5	50.3	4
Steuben	1,131	0.4	42.4	0
Milbridge	1,353	5.8	47.3	3
Jonesport	1,370	-2.7	49.0	4
Beals Island	508	-17.8	48.1	11
Bucks Harbor	1,119	-3.5	43.3	1
Lubec	1,359	-17.7	54.0	1
Eastport	1,331	-18.8	54.5	1

Table 1: 2010 population, percent change of population from 2000-2010, and 2010 median age (Data source: U.S. Census 2010) and number of federal groundfish permits (Data source: NMFS Permit Database) in the Eastern Maine study communities. Additional economic, demographic, and fisheries statistics are available in the community profiles.

Project Challenges:

We encountered several challenges with this project, which we believe are additional indicators of the available capacity in this region to participate in the groundfish catch share system.² These can be summarized into two major categories: (1) finding fishermen to participate in the study, and (2) acquiring and analyzing fisheries data. These difficulties are due in part to the collapse of the resource and the regulatory and reporting structures put into place following the collapse.

Finding fishermen to participate in the oral history interviews and focus groups was difficult due to the fact that the fishery collapsed in this region about 20 years ago and fishermen left the fishery, either retiring or shifting to more abundant fisheries, like American lobster. We also

¹ Bass Harbor includes Tremont and Bernard. Gouldsboro includes Gouldsboro, Corea, Birch Harbor, and Prospect Harbor. Bucks Harbor includes Machiasport.

² Minor challenges faced in the project emerged from the late start of the project due to the need to recruit a graduate student and, consequently, the timing of fieldwork made recruitment challenging because fishermen were lobstering at that time of the year. We had originally intended to hire a consultant with experience and expertise in the region, but she could not work on the project because she had relocated out of the area. After revising the budget, we had only 1 year of funding for the graduate student to do this work.

confirmed that many formerly active fishermen were deceased or were experiencing declined health. In addition, those that are still around are angry, and understandably bitter, about what had happened to the fishery in their region. Many view a future in the groundfish fishery as hopeless, for themselves and for the future generation. This translated into either disinterestedness and/or unwillingness to participate in research related to this fishery, particularly research funded by NOAA Fisheries. This pessimism illustrates an important challenge we identify for these fisheries to participate in the groundfish fishery; if no one can imagine a future for these communities in the groundfish fishery, no one is going to work to create one.

A very brief history of the management of this fishery is useful to understand some of the problems we encountered with this research.³ The New England Fishery Management Council has managed groundfish in the Gulf of Maine since the early 1980s. The fishery remained in an open access state until 1994, when limited entry and the days at sea management system were implemented as part of Amendment 5 to the Northeast Multispecies Fishery Management Plan. It was also at this time that vessel trip reports (logbooks) collecting data on landings became mandatory. Extremely low trip limits that would create substantial discards led fewer fishermen to fish during the early 1990s. Those not fishing during this time were not accumulating any “history” in the fishery. Over time, restrictions on the number of days at sea increased (i.e., fewer and fewer days were allocated), culminating in Amendment 13 in 2003, which set allocation of days at sea to reflect “historical” participation in the fishery, defined as being from 1996-2001. Consequently, few eastern Maine fishermen had any “history” in the fishery, and so these fishermen, for all purposes, lost access to the fishery.⁴ This allocation system was essentially carried forward under the new catch share system that was implemented in 2010.⁵ This system, known as sectors, allocates quota to groups of fishermen, with allocations based on the individual histories of those in each group (from years 1996-2006). One sector includes eastern Maine fishermen, the Northeast Coastal Communities Sector, organized by Penobscot East Resource Center. However, due to few permits and limited history, and hence low allocations, there is no commercial groundfish fishing in the region, except for halibut.

We faced challenges in trying to document the historical participation in the fishery through fisheries data because data do not exist, are of very poor quality due to the nature of reporting prior to 1994, or cannot be reported at the level of eastern Maine communities. These communities are relatively small, which make reporting difficult due to confidentiality restrictions (Table 1).

Project Activities and Outcomes:

Here we report on each of the major project tasks. A project website will be created to share products from the project.

³ The history, management and collapse of the New England groundfish fishery have been well documented elsewhere (e.g., Acheson 1984, Ames 1997, Boreman et al. 1997, Hennessey and Healey 2000, Acheson 2006). We summarize it only very briefly here.

⁴ Fishermen were assigned A, B, and C days at sea (DAS). The latter type of DAS was intended to serve as a placeholder for fishermen to fish in the future. The baseline for allocation of DAS in Amendment 13 was 1996-2001.

⁵ The catch history baseline for sector allocations for Amendment 16 was 1996-2006.

Focus Groups

- **We held 4 focus groups in June 2011.** These informed the design of the rapid assessment and oral history interviews and contributed insight into fishermen's perceptions about changes in the fishery and its future.

The 4 focus groups in Stonington and Beals generated qualitative data on the perception and experiences of Eastern Maine fishermen related to groundfish. The focus groups also served as part of scoping the issues for a larger study on evaluating the feasibility of groundfish catch shares in this region. The locations for the focus groups were chosen based on the high level of both historical and most recent groundfish activity in those ports. Jonesport fishermen were invited to, and attended, the Beals focus group. We scheduled 2 focus groups in each area aimed to gather insight from both elder fishermen and young fishermen in 1.5-hour discussions. Elder fishermen are those who either held groundfish permits or worked on groundfish boats. These fishermen were generally over the age of 50. The elder fishermen were selected to inform about what it was like to groundfish in these ports and in the eastern Gulf of Maine. The young fishermen, in their mid-twenties to mid-thirties, are those who are actively fishing for lobster- the predominant commercial fishery in the region- but, for the most part, have not participated in the groundfish fishery. Young fishermen are the future of fishing in these communities and their input as to what their fishing business and families would need to move into the future in a catch share fishery is integral to this project.

A project partner, the Penobscot East Resource Center (PERC), was responsible for generating focus group invitee names and inviting participants to the meetings. The invitations were done either in person or over the phone. In Jonesport and Beals, PERC identified 10 elder fishermen and 9 young fishermen to invite to the focus groups. A total of 6 elder fishermen and 8 young fishermen attended. The average age of the elder and young fishermen was 62 and 30, respectively. In addition to the fishermen, three members of PERC and three university researchers attended the focus group. In Stonington, where PERC is located, 15 elder groundfish fishermen and 14 young fishermen were invited. Four young fishermen and 3 elder fishermen participated. In addition to the fishermen, three members of PERC and two university researchers attended the focus group. In order to defray some of the costs to the participants, a modest honorarium was offered to all focus group participants. Several participants would not accept the honorarium.

Questions for the focus group were vetted through the larger research team and sought to explore what groundfishing was like at different points in history, as well as to document perceptions about changes in the fishery and prospects for the future. Robin Alden facilitated the group discussions using these questions. Focus group discussions were audio-recorded and detailed (non-verbatim) transcripts were created.

Challenges: We had a very low attendance at the Stonington focus group, despite efforts by Penobscot East Resource Center, located in Stonington, to recruit participants. We learned from our project partner's conversations in the grocery store with a participating older fisherman that there is so much pessimism around groundfish that many of the younger fishermen are discouraged by their seniors to "not even bother," and that this contributed to the low level of participation. The difficulties faced in recruiting participants, even when honorariums were provided as an incentive, underscore socio-psychological impacts of the groundfish crisis and a

barrier to the region's participation in the fishery in the future (i.e., some resist thinking about the future of groundfishing in the area because they are convinced a future does not exist).

Rapid appraisal and community profiles

- **We produced community profiles for 16 eastern Maine communities.** These were based on a rapid assessment, document review, and summary of US Census and state and federal fisheries license/permit data.

College of the Atlantic interns, under the direction of Chris Peterson and Ken Cline, produced preliminary profiles following the rapid assessment. A key contribution of the rapid assessment was the documentation of current infrastructure in the study communities. An undergraduate assistant from the University of Maine updated the profiles with 2010 census data and 2011 NOAA permit data, and reformatted the profiles for consistency. These profiles were sent to the Penobscot East Resource Center for groundtruthing and review with community members. A report, "Fishing Community Profiles: Results from a Rapid Assessment in Eastern Maine," with the final profiles will be shared with NOAA Fisheries and will be available on the project website.

Challenges: The rapid appraisal was very quick and could not capture as many details about the communities as we would have liked. Communities are changing, and therefore, the profiles can best be considered a snapshot. Landings data were not available for us at the level of the communities to include in the profiles, and therefore, only available federal permit and state license data are included. Finding reviewers for the community review, or groundtruthing, of the profiles proved very difficult and took longer than anticipated.

Analysis of secondary data

- **We analyzed federal fisheries data from NOAA and state data from Maine DMR** to characterize the current and historical capacity in eastern Maine fisheries.

Challenges: Federal fisheries data from NOAA and state data from Maine DMR were difficult to obtain and process due to confidentiality issues. NOAA and DMR staff assisted our efforts. We obtained county and regional landings data, including Maine-waters-only (non-federally permitted) landings, from the Maine Department of Marine Resources. We revised our analysis strategy to reflect the data that were available. The analysis is incorporated into the regional profile found in the report describe above, "Fishing Community Profiles: Results from a Rapid Assessment in Eastern Maine."

Oral history interviews

- **We produced 25 oral histories of former groundfish fishermen from eastern Maine.** Oral history interviews for which permission to share was given will be made available at NOAA's Voices of the Fisheries Project and the Maine Folk Life Center.

Oral history interviews took place in eastern Maine, from Vinalhaven to Eastport. A total of 28 oral history interviews with former groundfish fishermen in eastern Maine were conducted from June 2011 to July 2012. Our sample was drawn from a list of 64 names provided by Penobscot East Resource Center.⁶ Of those names provided, many that we contacted were deceased, sick,

⁶ Penobscot East Resource Center had originally intended to hire a community interviewer and provide honorariums for the oral history interviews. However, due to scheduling difficulty with fishermen in the height of their summer

or not able to be reached, and many did not wish to participate in our study. In addition to this list, we gathered eight additional participants through snowball-sampling (Bernard 2005). Oral history interviews were conducted with fishermen who fished out of Vinalhaven, Stonington, Mount Desert Island, Jonesport, Beals, Steuben, Buck's Harbor, Corea, Birch Harbor and Eastport. Interviewees ranged in age from 44 to 83, with the average age being 65. Most of the interviewees owned and operated their own groundfish boats, but several had served as crewmembers or hired captains. Interviews followed an interview guide that was developed in consultation with the project partners.⁷ Transcripts or detailed notes were entered into an NVivo 9 database for qualitative analysis. In addition to contributing to this research project, interviewees were asked for permission to share their oral histories with NOAA's Voices from the Fisheries Project and the Maine Folklife Center. A total of 16 fishermen agreed to share their oral histories with NOAA's Voices of the Fisheries Project, and of these 4 only agreed if we kept them anonymous. Five individuals have not responded to our requests regarding permission to share.⁸ We used QSR NVivo 9 to store and analyze interviews. A peer reviewed journal article based on these results is in preparation for submission to *Human Organization*.

Challenges: Former participants in groundfishing in this region have left the region, died, and/or are aging, leading to challenges in finding participants in the study. Due to distrust and resentment regarding the impact of management on this region's fisheries, many participants were reluctant to have their oral history deposited in the NOAA's Voices of the Fisheries database. Depending on interviewee preference and audio quality, we have either transcribed or took detailed notes from the interviews for sharing or analysis. We encountered audio quality problems with two audio files, with three fishermen. These could not be transcribed, but detailed notes were given to inform the analysis.

In-depth interviews

- **We conducted in-depth phone interviews** with experts on the Maine groundfishery and the catch share (sector) management system between July and September 2013.

The four experts included 2 sector managers, one staff member of the Maine Department of Marine Resources, and one staff member of a nonprofit organization working on fisheries issues. The interviews were audio recorded and transcribed. Topics covered include: Interest in groundfishing among Eastern Maine fishermen; how the catch share/sector system and permit banks work; issues regarding consolidation and its prevention; barriers for new entrants in the fishery/catch share system and how they might be overcome; and general advantages and disadvantages of the catch share, sector management system specific to small-scale fishermen.

lobster fishery, they opted to proceed without a community researcher. They also did not pay an honorarium because in their experience (and even during the Focus Groups of this project) fishermen are reluctant to accept money for their participation in these sorts of discussions.

⁷ Two audio files were damaged, but detailed notes were taken during the interviews and included in the analysis. One of these interviews was conducted with two fishermen.

⁸ Several fishermen cited anger and distrust of NOAA Fisheries for reasons why they would not share their oral history interviews. These feelings about scientists and managers are another "impact" of the collapse and management failure of this fishery. These sentiments created challenges throughout this research project because NOAA funded it.

Semi-structured Phone Interviews

- **We conducted 71 semi-structured telephone interviews** from December 2012-January 2013.

We conducted 71 semi-structured phone interviews with Eastern Maine fishermen in December 2012 and January 2013. We targeted two groups of fishermen who live in Eastern Maine: (1) federal Northeast multispecies permit holders (with or without a Maine halibut license), and (2) federal permit holders with a Maine halibut license but without a Northeast multispecies permit. For this analysis, our definition of Eastern Maine included all towns in Washington County and Hancock County plus the island towns of Isle au Haut, North Haven, Vinalhaven, and Matinicus. Of the 129 fishermen contacted via phone, 71 agreed to participate in an interview, giving us a 55% response rate. The response rate was 69% for Northeast multispecies permit holders (63% for limited-access multispecies permit holders and 71% for open-access multispecies permit holders), and 45% for Maine halibut license holders. Our final sample of interview participants included 37 Northeast multispecies permit holders (69% of the population) and 34 Maine halibut license holders (22% of the population). The Northeast multispecies participants included 12 limited-access multispecies permit holders (63% of the population) and 25 open-access multispecies permit holders (71% of the population).

Interview questions covered prior fishing experience, interest in groundfishing in the future, familiarity with the current sector management system, perceptions of that management system, and preferences for various types of fishing regulations. A summary of the interview results will be made available on the project website and will be shared with stakeholders, and a peer reviewed journal article based on these results will be prepared for submission to *Marine Policy*.

Undergraduate and Graduate Training and Mentoring

- **We supported, directly or indirectly, a total of 10 graduate and undergraduate students.**

This project supported the education and training of two College of the Atlantic (Garland and Ross) and three University of Maine students (Koboski, Knowles, Thornborough). It also supported five graduate students (Clever, Henry, Kersula, Randall, Thompson). Garland and Ross were trained to conduct the rapid appraisal. Randall and Kersula conducted oral history interviews. Koboski updated US Census and state and federal fisheries permit and license data. Koboski and Thornborough assisted with transcription of oral history interviews. Knowles analyzed data for a GIS course. Cleaver analyzed GIS data collected by Ross for a class project and produced maps for the project. Oral history interviews were analyzed by Randall, Henry, and Thompson, and informed the analysis used in Henry and Thompson's MS theses.

Dissemination of research

- We have shared our research in number of ways and dissemination of the research findings will continue past the project's formal end date (August 31, 2013).
 - We will share all community profiles with Northeast Fisheries Science Center Social Science Branch. Community profiles will also be shared locally at libraries and local museums in eastern Maine. Links will also be made to the Maine Sea Grant's Downeast Trail (<http://www.DowneastFisheriesTrail.org/>) and Dr. Johnson's

- research website and her Sea Grant research website (<http://www.seagrants.umaine.edu/research/projects/fishing-community-resilience>).
- We will share oral histories (those for which we have permission) with NOAA's Voices of the Fisheries Project (<http://www.st.nmfs.noaa.gov/voicesfromthefisheries/>) and the University of Maine's Maine Folk Life Center (<http://umaine.edu/folklife/>), once final project publications are complete (or by August 2014).
 - Publications and Reports:⁹
 - Henry, A. 2013. Assessing Social Resilience of Maine Fishing Communities and Developing a Longline Groundfish Survey. Unpublished master's thesis. University of Maine, Orono, ME. (indirect)
 - Thompson, C. 2012. Gentrification and vulnerability of Maine fishing communities. Unpublished master's thesis. University of Maine, Orono, ME. (indirect)
 - We are working on manuscripts for publication based on this work. Target journals include: *Marine Policy* and *Human Organization*.
 - ⁸Professional presentations:
 - Henry, A., **T.R. Johnson**. 2013. Vulnerability and resilience in Maine fishing communities: The complex and dynamic role of the American lobster fishery. Oral Presentation at the Annual Meeting of the Society for Applied Anthropology, Baltimore, March 22, 2013. (indirect)
 - Henry, A., **T.R. Johnson**. Lobster as a source of vulnerability and resilience in Maine fishing communities. Presentation at The American Lobster in a Changing Ecosystem: A US-Canada Science Symposium, Portland, Maine. November 27-30. (indirect)
 - Thompson, C., **T.R. Johnson**. 2012. Gentrification and Vulnerability in Maine Fishing Communities. Oral Presentation at the Annual Meeting of the Society for Applied Anthropology, Baltimore, March 28, 2012. (indirect)
 - **Johnson, T.R.** 2012. Understanding Meanings of Resilience in Fishing Dependent Communities: Lessons from Maine. Paper presentation at the Annual Meeting of the Society for Applied Anthropology, Baltimore, March 28, 2012.
 - **Peterson, C.** 2012. College-nonprofit partnerships in community-based management. Oral Presentation at the Association for Environmental Studies and Sciences Conference, Santa Clara University, Santa Clara, CA, June 2012.

Funding and other resources leveraged

- **We leveraged funds from several other projects as part of this research.**
 - S. Randall was awarded a University of Maine Canadian-American Studies Fellowship to cover her 2nd year on the project (tuition, stipend, and health insurance). During this fellowship, she wrote a paper examining the Atlantic

⁹ Publications and presentations marked as indirect were funded primarily through other sources (see funding and other sources leveraged), but were informed from some of the oral history interviews and larger themes that emerged from this project.

Canadian experience with ITQs. She also spent time during her fellowship working on this project.

- T. Johnson leveraged funding from other projects that contributed to this research to support additional graduate students. A. Henry was supported with funds from a Maine Sea Grant award and C. Thompson was supported with funds from the Maine Agriculture Forestry Experiment Station; both students conducted oral history interviews and research in Eastern Maine as part of their thesis work. M. Kersula, graduate student with Dr. James Wilson, conducted some of the oral history interviews for the project, with funding from an NSF funded project (PI: J. Wilson; Co-PI Johnson, et al.).
- Some of the oral history interviews were professionally transcribed with funding from the Maine Agriculture Forestry Experiment Station project (PI: T. Johnson).

Summary of Major Findings:

It is difficult to imagine a future for these small-scale, fishery-dependent communities to participate successfully in the current groundfish catch share system when, other than halibut, there is no commercially viable groundfish resource near the coast within the range of small-scale, day boat fishermen living in eastern Maine to harvest. In the end, this is the most critical barrier preventing these communities from taking advantage of the catch share system. Overcoming this barrier requires rebuilding the depleted groundfish stocks and the habitat that supported them. Suggestions for this have included local or area management, as promoted through the Downeast Groundfish Initiative, including restoring habitat and forage fish species to support groundfish populations. The Sentinel Fishery/Survey that began in 2010, a partnership between the University of Maine, Penobscot East Resource Center, and NOAA Fisheries, is an attempt to monitor the stocks and any changes occurring, as well as to build capacity in the communities for area management and participation in the fishery in the future. Permit banks that have been established also offer possibilities for the future when the fishery rebuilds.¹⁰

Below are some of the major findings from this study.

- The groundfish fishery was important to this region in a number of ways.
 - Groundfishing was a key species in a diversified fishing annual round, particularly when lobster fishing was not as abundant as it is today
 - Prices were relatively low, but the fishery provided valuable income and jobs for these communities throughout the year
 - The fishery provided individuals with well being and personal satisfaction
- The decline of the resource and resulting regulations resulted in a **loss of access**, which further contributed to a **loss of infrastructure** and fleet diversity in the region
 - There has been little groundfishing in the region, due in part to the collapse of the resource, for nearly 20 years. An exception to this is a small-scale sentinel fishery designed by the University of Maine and a small-scale halibut fishery in state waters.

¹⁰ For a review of permit banks, see <http://www.nature.org/ourinitiatives/regions/northamerica/areas/gulfofmaine/howwework/permit-banking-white-paper.pdf>.

- The collapse of the fishery occurred before the implementation of limited access in the multispecies groundfish fishery, and therefore, the baseline used for allocation in the regional catch share system does not reflect this region's history.
- The collapse of the fishery also occurred prior to mandatory logbooks, and thus it is very difficult to document the true "history" of fishermen participation in this fishery. However, oral histories provide a glimpse into this history.
- There currently is no significant market and there are no processors in the region for groundfish. Most of the fishing infrastructure in the communities is targeted at the lobster fishery.
- Eastern ME fishermen and communities would like access to the groundfish resource should it return; efforts are underway to make this happen.
 - Fishermen are concerned about the future of their communities due to the increased reliance upon the American lobster fishery; alternatives are needed if this fishery should decline.
 - Permit banks and one locally based groundfish sector could provide access to the fishery in the future, although more support is needed to make these efforts work.
- Future access to the groundfish fishery is hindered by economic and financial barriers created by the management system
 - The limited mobility of eastern Maine's small-boat fishery prevents them from fishing when fish are not abundant near shore. Larger more mobile vessels that can go wherever the fish are may prevent stocks from adequately rebuilding in eastern Maine.
 - There were only 55 limited-access permits left in Eastern Maine in 2011, and that number has been declining because of regulatory disincentives to hold on to the permit.
 - The cost of purchasing a permit and quota on top of the cost of new gear is a barrier. Small-boats are economically disadvantaged in the market for quota. The small-volume, high-margin model of small-boat fisheries makes it difficult to outbid large vessels for quota. Permit banks can help small-boat fishermen by offering discounted quota prices.
 - Regulatory economies of scale created by catch share/sector administrative costs and at-sea monitoring disadvantage small-scale fishermen. Assumptions based on large-scale net fishing, such as 100% mortality of all fish caught, disadvantage small-scale jig fishermen. VMS and weekly reporting requirements (even if did not fish) further discourage small-scale fishermen.
 - The availability of markets and other infrastructure directed at groundfish is another barrier, although many fishermen and interviewees indicate that these could return if there was a resource and access to that resource in the future.

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