

An Appraisal of the Social and Cultural Aspects
of the Multispecies Groundfish Fishery
in New England and the Mid-Atlantic Regions

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Executive Summary

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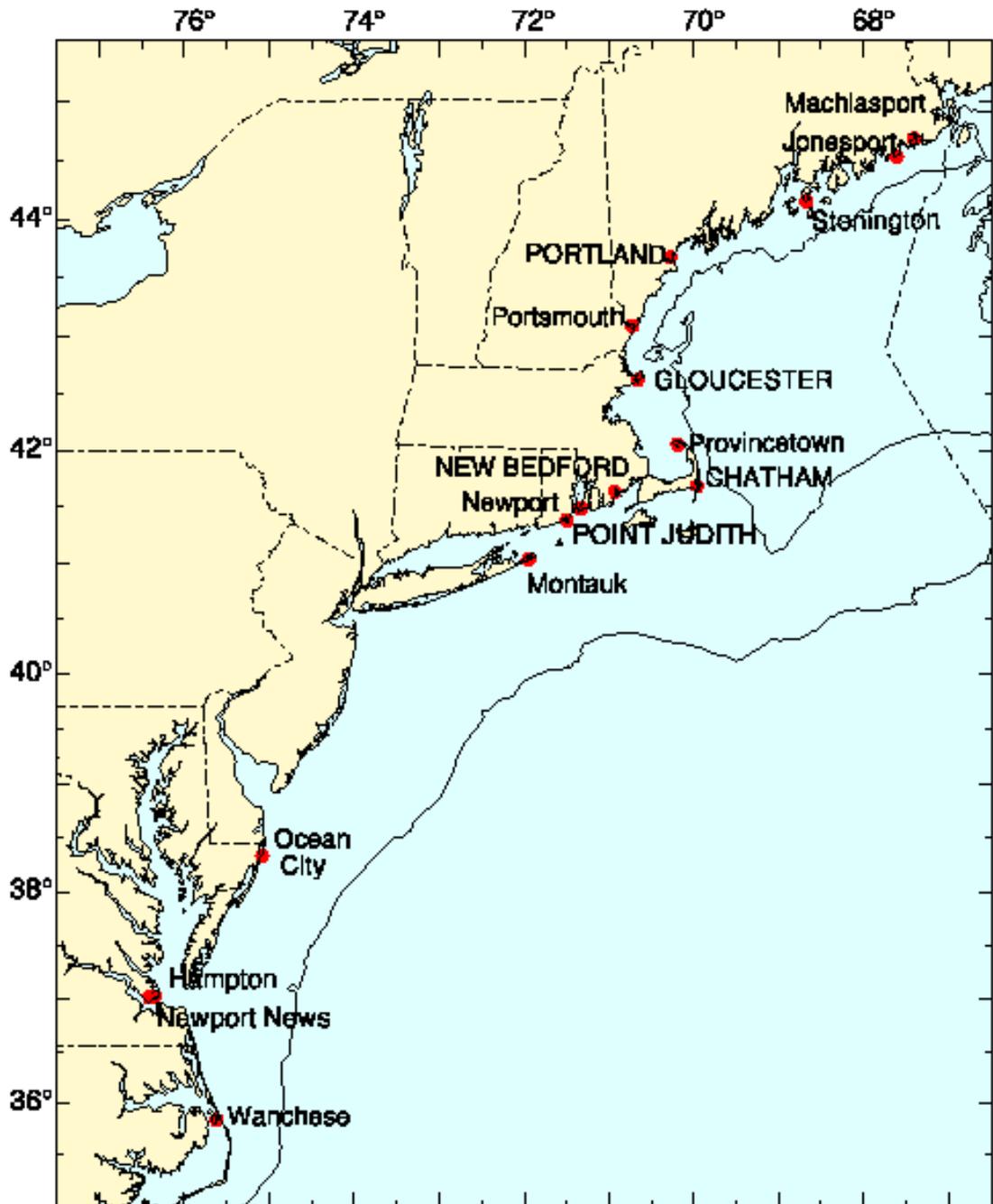
1. Fishing communities of New England and the Mid-Atlantic, particularly those dependent upon the Multispecies Groundfish Fishery, are experiencing a social and economic crisis brought on by regulatory changes. Amendments # 5 and # 7 to the Multispecies Groundfish Management Plan and Marine Mammal Protection legislation have led fishers and their families to make several, often radical, adjustments to their lifestyles in order to maintain their attachment to the nation's marine resources and preserve their independence from low-wage sectors of the economy. Those adjustments are neither wholly new and innovative nor desperate responses to declining fish stocks. Fishers and their families consider the situation at least as much political as biological. They disagree with State and Federal assessments of the conditions of stocks and trace the origins of their problems to policies fashioned during the 1970s and early 1980s that encouraged low-cost loans, technological advances, and unlimited entry into the fishery. The over capitalization that occurred, fishers argue, laid the basis of the economic and social disruption and the associated crisis of legitimacy of fishers toward national and regional management agencies.

Aguirre International was engaged to report on the social and cultural aspects of the MGF by ascertaining community-dependence on the MGF, providing information on the demographics of the fishing industry, identifying social science data bases that could be used in follow-up studies and developing a classification system that will aid in predicting the social impacts of the changing fishery regulations on fishery-dependent communities.

2. Using a variety of Rapid Ethnographic Assessment Procedures (REAP), including in-depth interviewing, focus groups, secondary source data collection, and pile-sorting tasks, social and economic aspects of the MGF fleet were identified and described. Those aspects were then presented in the context of five primary and nine secondary ports along the Atlantic coast from Maine to North Carolina. Ports were selected using a combination of information derived from field visits, licensing data, telephonic interviews, with individuals in the local area, and consultation with national and regional National Marine Fisheries Service representatives. Listed from north to south, the primary ports were (see Figure 1):

- a. Portland, Maine;
- b. Gloucester, Massachusetts;
- c. Chatham, Massachusetts;
- d. New Bedford, Massachusetts; and
- e. Point Judith, Rhode Island.

Figure 1: Map of Primary and Secondary Multispecies Groundfish Ports



The secondary ports were, in some cases, more regions than individual ports. Coverage of the ports varies widely, primarily because groundfishing has become more concentrated in recent years. Ports which seemed to be heavy groundfish ports based on licensing data were found to be sites of little groundfishing activity. The nine secondary ports/regions were:

- a. Stonington and the Down East region of Maine;

- b. Portsmouth, New Hampshire and Southern Maine Ports;
- c. Provincetown, Massachusetts;
- d. Newport, Rhode Island;
- e. Montauk, New York;
- f. Ocean City, Maryland;
- g. Tidewater Region, Virginia (Hampton Roads, Newport News); and
- h. Wanchese, North Carolina.

3. In their attempts to maintain the fishing lifestyle, most fishers have adjusted by experimenting with new fisheries, dealing with reduced incomes by rotating or laying off crew (keeping individual shares stable), supplementing incomes with casual shore employment or with the labor of their spouses, or curtailing consumption practices. While moving into alternative fisheries has been the most preferred response, most of the larger vessels of Gloucester and New Bedford have become too specialized and too dependent on family networks for staffing vessels to shift into other fisheries without significant capital investments. Small and medium-sized vessels (30' to 75') have had more success moving to alternative fisheries, yet often have been met with hostility as they attempt to enter fisheries dominated by families and fleets that have been in those fisheries for generations. Lobstermen of Maine, for example, are firming up their territories in response to current and anticipated movement of groundfish fishers into their fishery. Other states have begun limiting entry as their legislators fear those displaced from the MGF will move into others waters.

4. Those who have moved into shore-based jobs have tended to take positions that are related to fishing or to seafaring (e.g., working marine repair or piloting passenger or cargo vessels). The aquaculture retraining programs designed to place fishers into shore occupations have not met with great success. Fishers view aquaculture retraining efforts as flawed because they do not demonstrate an understanding of culture of fishers as hunters as opposed to farmers.

5. From the community studies, five variables have been determined that predict dependence on the MGF. These are:

- a. The degree to which fishers in a port are isolated or integrated into alternative sectors of the economy or alternative fisheries. The more isolated or socially and culturally cut off fishers are from the wider society, the more dependent they tend to be on fishing.
- b. Type of vessels that characterize the fleet. Those fleets that have large, highly specialized vessels tend to be more dependent on the MGF than those with smaller vessels or mixed vessels.
- c. Degree of specialization in the MGF. The more specialized the more dependent.

d. Percentage of population involved in fishing or fishing related activities.

e. Competition and conflict between fleets within a port were associated with high levels of dependence.

6. Based on the variables in the five primary ports, New Bedford was determined to be the most dependent on the MGF followed by Gloucester, Portland, Chatham, and Point Judith.

Among the secondary ports, Stonington, Wanchese, and Montauk, while heavily dependent on fishing in general, were less dependent on the MGF in particular. However, the crisis within the MGF was relevant in all ports because groundfishing is a crucial part of many fishers' annual rounds and because other fishers were concerned that displaced groundfishers would move into their fisheries or receive heavy Federal quotas that would drive smaller fleets out of business.

7. Fishers interviewed identified 11 critical issues/problems that they believe were of importance to understanding the current and past adjustments to crises and to understanding the probable future of commercial fishing in the United States. For the fishers, these issues are:

a. Fishers respond to crises based on past experience and by moving into new fisheries and new territories as opposed to moving into other sectors of the economy.

b. Current regulations are confining them to specific fisheries, curtailing their abilities to remain flexible by responding to changing fish stocks.

c. Fishers view the process of regulating the fisheries as biased, based on inaccurate data, and suffering from a lack of effective communication links between fishers and fishery managers.

d. The institutional responses, primarily the vessel buy-back program and the retraining programs, have been unsuccessful.

e. Crew reductions, days-at-sea limitations, and competition within and between fleets have caused safety problems.

f. The current crisis originated with the over capitalization processes of two decades ago.

g. Fisheries are regulated unevenly, with some species too tightly controlled while others are not controlled enough.

h. Competition between ports has reached epidemic proportions.

i. In designing regulations, fisheries managers often fail to take into account the full effect of regulations on the families and households of fishers.

j. Federal regulators have not addressed the growth in imports of fishery products and their impacts on ex-vessel prices of fishers in the United States.

k. Credit and insurance have become severe problems within the fisheries, with not only banks and insurance companies refusing to finance and cover vessels, but also trip suppliers, marine repair personnel, and other related businesses backing away from the fishing industry.

8. These problems, combined, have resulted in fishers relying more on their own internal resources, particularly alternative forms of capital that are available to them by virtue of their membership in meaningful social groups and enclaves. Efforts to address the crisis in the MGF have come from many sources, including fishing organizations, city and state governments, the Federal government, and individual fishers and their families. While there are a number of programs underway, there is no well coordinated effort. Success of these programs is heavily dependent on a better understanding of the nature and extent of the crisis and the unique characteristics and adaptive strategies of fisher families and communities across the MGF.

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I. Background on History, Issues, and Findings

Fishing households relying on the Multispecies Groundfish Fishery (MGF) of New England and the Mid Atlantic are facing a crisis in their communities. Declines in groundfish stocks, and the resultant restrictive Amendments # 5 and # 7* to the MGF management plan puts many fisher and supporting occupational households in a state of social and economic crisis. The general perception in the MGF fishing communities is that the crisis is the result of recent regulations that dramatically restrict their number of days at sea. These regulations are already hampering the ability of many fishers to survive economically. Yet, causes for the present fishery crisis are complex, include regulation impacts and declines in traditional groundfish stocks, but are also linked to less understood community-level issues and processes and that are the basis of this report. For example, increased costs of fuel, equipment repair, insurance, dockage fees, as well as other factors adversely impact those individuals relying on the MGF. This results in a breakdown of cooperative fishing units, associated formal and informal coping networks, and forms of capital (e.g., social, human, and cultural).

*Note by Clay: For details of the current Amendment # 7 regulations, return to the NEFSC homepage, choose "Information", and scroll to "A Guide to Northeast Multispecies Fishery Management Plan Amendment 7." Full text can be found through a Federal Register search. Amendment # 5 was implemented in May of 1994 and Amendment # 7 was implemented in July of 1996. Amendment # 6 was minor in scope, changing only the hadock trip limit.

A common perception among fishermen in the New England and Mid-Atlantic MGF, similar to other regions and fisheries, attributes restrictive government regulations for problems associated with the management of fishery resources (Sinclair 1983; Durrenberger 1995; Maril 1993; Griffith 1996; Johnson and Orbach 1996). Disputes between fishers and managers over the cause of fishery decline date back to governmental intervention in the late 19th century codfish fishery of Newfoundland (Hewitt 1993). Fishers also commonly complain that policy responses to declines in fish stocks and other problems with marine ecosystems (e.g., red tide) are often too restrictive and overcompensatory, often being derived purely from political motives (Fritchley 1993). In this study, we elicited numerous responses that suggested that fishers believe the current decline in MGF stocks dates back to misguided government policies of the late 1970's where low-interest loans* provided to fishing families overcapitalized the fleet, encouraged outside investment in fishing by "absentee owners," led to routine overfishing and stressed marine resources.

*Note by Clay: For information on the Capital Construction Fund (CCF) see [ccf.htm](#). You may also wish to request "Data Description and Statistical summary of the 1983-92 Cost-Earnings Data Base for Northeast Commercial Fishing Vessels" NOAA Technical Memorandum NMFS-NE-112, available from

[It is unlikely that the cause of the recent and current declines in fish stocks can be traced to a single misguided policy or even set of fishing practices.](#) The collapse of fishery resources, historically, is neither unique nor necessarily permanent (McEvoy 1986; Aranson and Felt 1995). Fisheries near collapse have, in some cases, recovered to a level of sustainability (Alverson 1987). In the New England fisheries, in fact Doeringer, Moss, and Terkla (1985:20) report that during the mid-1960s: "The decline in the stocks greatly alarmed the New England offshore groundfish fishermen." As one Gloucester fishermen said, "There will be no fish and with no fish no boats and no fish plants." In the view of another, "years ago we used to get capacity loads, now all we are doing is scraping the bottom. The industry as a whole has declined to a disaster point." Less than a decade later, crewmen on fishing vessels in Gloucester and other parts of New England had experienced their incomes rise to levels that were far higher than previously, and the passage of the Magnuson Act ushered in a brief period of prosperity for fishers that surpassed any of the cautious hopes of fishermen, boat owners, and processors voiced publicly (Doeringer, Moss and Terkla 1986: 26).

[There have been cases, of course, where declines in fish stocks have been severe and complete](#) (Hutchings and Myers 1995). Causes for these declines, again, are rarely due to single causes, but include overcapitalization, unrestricted fishing with highly productive fishing technologies, weak management structure, poor enforcement of fishing restrictions, and environmental factors such as habitat destruction from coastal development and pollution, oceanological processes (El Ni~no), and the fishing practices of foreign fleets (Warner 1977). Several of these factors combined to bring about the utter collapse of the Peruvian anchovy fishery (McCay and Acheson 1987; Dobyms and Doughty 1978).

[Blaming management for fishery collapse, from ineffective enforcement or overly restrictive regulations, stems in part from the perception, common among fishers, that managers rarely respond quickly to the plights facing fishers and fisheries](#) (Dyer and McGoodwin 1994). For the past two years, the North Carolina herring fishery has been closed on April 15, or between two and six weeks prior to the end of the herring run (Griffith 1996). Responding to these restrictions, all but one pound-net herring fisher in Albemarle region agreed to cut the number of nets in the fishery in half, if only fishery managers would allow them to fish in May. Herring fishers we interviewed in the Spring and Summer of 1996 complained that repeated appeals to fishery managers concerning these voluntary, self-imposed restrictions had been met with silence.

[In late April, one herring fisher invited us to examine his pound-nets--which were catching](#)

nearly 10,000 pounds of herring that day that he had to release--in an attempt to convince local state fisheries biologists that the herring stocks had recovered. State fisheries biologists, who refused to examine these late season catches, explained that the stocks needed four seasons of healthy recruitment to recover previous levels, although they expressed some surprise that the nets, in late April, were catching 10,000 pounds of herring per day. Despite this surprise, they did not bother communicating directly with the herring fishers, preferring instead to communicate with university faculty working on the issue, and refused to examine the daily catches themselves.

Similar to the herring fishers' views of fishery managers, fishers we interviewed in New England viewed the National Maine Fisheries Service as having outdated stock information nearly two years behind actual stock conditions*, in part due to the transition from dockside surveys to fishers' log reporting methods. They also were concerned that data from the current log book system was not even being integrated into stock assessment calculations. The case of the herring fishers is but one illustration of misunderstanding, miscommunication, and misinformation both within the fishing community and the management context leading to disputes between fishers and fishery managers. Blaming fishery managers for declines in fish stocks seems particularly unfortunate, for declines, as just noted, rarely derive from single causes.

*Note by Clay: For information on how NMFS gathers fishery data return to the NEFSC homepage, choose "Fish FAQs" and scroll to "Fisheries Information Gathering Techniques."

In the same way that complex sets of factors contribute to fluctuations in fish stocks, generally restrictions on fishing practices also derive from several resources. Again, when we examine the historical record in New England and elsewhere, we find that rarely are single causes to blame for either problems with marine ecosystems or the resulting political responses to these problems. Policies designed to address declines in fish stocks and associated declines in fishing incomes, whether restrictive measures such as Amendment # 7 or compensatory measures such as occupational retraining programs, may originate from strictly biological concerns yet may also originate in conflicts between user groups (whale watchers and commercial netters) or from differential claims on the resource. In 1891, for example, we read in a letter to the state capital from Roanoke Island, North Carolina:

"The people here are poor and depend entirely upon the waters for support, in a way of fishing and oystering. But the Virginia men are down here and have taken entire possession of all the oyster grounds, their boats are much larger than those here, and when these are at work the Virginians will run down upon them and tear them up; and when they try to retaliate it is useless, for they are armed to the teeth with Winchester rifles and some have 36 lb guns. Unless something is done to stop

their dredging, these people will be in a starving condition in twelve months, for it will be useless for the fishermen to put in any shad nets, for these Virginians pay no attention whatever to their nets; they run their boats through and tear them up, and the consequence will be these nets will be all cut to pieces, and no fish caught, and when there are no fish caught there will be no bread."

This user conflict, which over a century ago precipitated tightening of oystering regulations, resulted from both perceived declines in oyster stocks from larger vessels from the Chesapeake entering North Carolina waters as well as from the actual space problems and physical confrontations on the water. No one familiar with these cases should be surprised to find the problems facing today's fishers at least as complex.

Information on the dynamics of impacted fish stocks has been a priority since 1964 with the initiation of annual groundfish surveys by the Bureau of Commercial Fisheries. Variations in MGF stock numbers, recruitment, and related measures have been tracked for decades (Wright 1987). A series of increasingly detailed quantitative models were developed that consider interactions among species. Lamentably, application of these models has not translated into management policy capable of preventing the decline of target groundfish species (NMFS 1993). Applying biological information on stocks to management has failed to check the ongoing decline in New England groundfish fisheries partly because it has not been matched with equally useful community-level information on the dynamics of user groups (Poggie, personal communication 1996). Because such information has not been available to integrate into effective fishery regulations, the application of such concepts as Optimum Sustainable Yield (OSY) to the MGF is dubious at best.

Another difficulty facing managers is the decline in federal funding* for the collection of biological information on the MGF. This will necessitate developing new avenues of information flow to track the state of the fishery. The most rational source of new, improved information is through cooperative endeavors between fishers and managers. Such endeavors require updated comprehensive information on the state of fishing communities, and an accurate reporting by fishers of catch and related observations on the state of both stocks and habitat. From the community perspective, a comprehensive SIA followed by an ongoing series of periodic updates can best provide users and managers with the information needed to develop cooperative, sustainable management scenarios for the MGF.

*Note by Clay: For information on the fiscal year 1998 NOAA budget request, go to <http://www.noaa.gov/>. For information on the Federal budget for fiscal years 1997 and 1996, go to http://www.access.gpo.gov/su_docs/budget/index.html.

The common perception of overregulation or misguided regulation among fishers is compounded by belief that fishery managers often fail to account for the community impacts of fishery regulations. Fricke (1985) proposes that fundamental concerns of managers are not to respond to critical community issues but are rather to avoid "adverse user and public comment, further deterioration of the resource, and challenges to agency policy" (1985: 47-48). Poor communication between users and managers, lack of co-management and other cooperative strategies, and reliance on ineffectual public hearing processes are also blamed for the collapse of fisheries resources (Pinkerton 1989; McGoodwin 1990). Reasons proposed for ineffective communication include inflexibility in the management structure (Fricke 1988), lack of a common language and world view (Smith 1988), and lack of an ecosystem management approach that "links changing scientific understanding of a region with evolving human values and needs as a basis for making [management] decisions" (Burroughs and Clark 1995:660). Many of these driving factors explain the critical social and cultural aspects of the MGF.

The MGF fisheries have not escaped the historical trends of social and economic decline facing fisheries on all coasts of the U.S. What is particularly alarming about the decline of this fishery is that it has previously been so sustainable, characterized by a fishing history that has made it part of the American cultural landscape. Many Americans are familiar with the symbol of the Gloucester fishermen, representing generations of fishing tradition dating to 1623 (Vickers 1995). North of New England, the ecologically contiguous Newfoundland codfish fishery, now in a state of collapse, has even more historical precedent, with fishing dating from 1504 (Quinn 1979). Despite these many centuries of sustainable fishery use, recent management measures on the Atlantic codfish, the prime target species of the MGF, have resulted in a moratorium on the Newfoundland fishery while surveys in Norway, Iceland and Scotland reflect greatly reduced numbers of larger codfish (FAO 1990).

Outcomes of the Newfoundland experience have been tragic, with entire communities being forced to abandon both their livelihood and communities as the fishery was shut down. Some predict that this fishery, which lasted for nearly half a millennium, may never recover. Certainly, the social and human capital lost during this moratorium will be difficult to replace (Felt, personal communication 1996). At the 1996 meeting of the Maine Fisherman's Forum, public comments by fishery leaders, particularly fishers' wives, reflect the view that they do not want to replicate the 'Canadian model.'

While the MGF is in a crisis state, it may still be possible to recover the fishery without impacting the communities to a degree beyond recovery. This study provides baseline social and cultural information that gives direction to managers in resolving the current crisis in a way that can minimize the negative impact to fisher communities. However, this

will not happen without innovative ways of collecting and applying necessary biological and community-level information to the management of the MGF. Innovation includes willingness to experiment and adapt new management measures, timely use of data, and engaging significant outside (community-based) involvement (Burroughs and Clark 1995). One option may be the employment of an ecosystem approach to management. Such an approach would require better flow of information between users and managers, and the proactive integration of the human dimensions of management.

[This report represents a first step towards a holistic systems-based approach to management.](#) When combined with a follow-on SIA, it should provide sufficient detail for managers and users to initiate a more sustainable system for the management of the MGF.

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**From the U.S. Code Online via GPO
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**[Laws in effect as of January 16,
1996]**

**[Document not affected by Public
Laws enacted between**

**January 16, 1996 and August 28,
1996]**

[CITE: 46USC--App.1177]

TITLE 46, APPENDIX--SHIPPING

**CHAPTER 27--MERCHANT MARINE
ACT, 1936**

SUBCHAPTER VI--OPERATING-DIFFERENTIAL SUBSIDY

Sec. 1177. Capital construction fund

(a) Agreement rules; persons eligible; replacement, additional, or reconstructed vessels for prescribed trade and fishery operations; amount of deposits, annual limitation; conditions and requirements for deposits and withdrawals

Any citizen of the United States owning or leasing one or more eligible vessels (as defined in subsection (k)(1) of this section) may enter into an agreement with the Secretary under, and as provided in, this section to establish a capital construction fund (hereinafter in this section referred to as the "fund") with respect to any or all of such vessels. Any agreement entered into under this section shall be for the purpose of providing replacement vessels, additional vessels, or reconstructed vessels, built in the United States and documented under

the laws of the United States for operation in the United States foreign, Great Lakes, or noncontiguous domestic trade or in the fisheries of the United States and shall provide for the deposit in the fund of the amounts agreed upon as necessary or appropriate to provide for qualified withdrawals under subsection (f) of this section. The deposits in the fund, and all withdrawals from the fund, whether qualified or nonqualified, shall be subject to such conditions and requirements as the Secretary may by regulations prescribe or are set forth in such agreement; except that the Secretary may not require any person to deposit in the fund for any taxable year more than 50 percent of that portion of such person's taxable income for such year (computed in the manner provided in subsection (b)(A) of this section) which is attributable to the operation of the agreement vessels.

(b) Ceiling on deposits; lessees; "agreement vessel" defined

(1) The amount deposited under subsection (a) of this section in the fund for any taxable year shall not exceed the sum of:

(A) that portion of the taxable income of the owner or lessee

for such year (computed as provided in chapter 1 of the Internal

Revenue Code of 1986 [26 U.S.C. 1 et seq.] but without regard to the

carryback of any net operating loss or net capital loss and without

regard to this section) which is attributable to the operation of the agreement vessels in the foreign or domestic commerce of the United States or in the fisheries of the United States,

(B) the amount allowable as a deduction under section 167 of the Internal Revenue Code of 1986 [26 U.S.C. 167] for such year with respect to the agreement vessels,

(C) if the transaction is not taken into account for purposes of subparagraph (A), the net proceeds (as defined in joint regulations) from (i) the sale or other disposition of any agreement vessel, or (ii) insurance or indemnity attributable to any agreement vessel, and

(D) the receipts from the investment or reinvestment of amounts held in such fund.

(2) In the case of a lessee, the maximum amount which may be deposited with respect to an agreement vessel by reason of paragraph (1)(B) for any period shall be reduced by any amount which, under an agreement entered into under this section, the owner is required or permitted to deposit for such period with respect to such vessel by reason of paragraph (1)(B).

(3) For purposes of paragraph (1), the term "agreement vessel"

includes barges and containers which are part of the complement of such vessel and which are provided for in the agreement.

(c) Investment requirements; depositories; fiduciary requirements; interest-bearing securities; stock: percentage for domestic issues, listing and registration, prudent acquisitions, value and percentage equilibrium, and treatment of preferred issues

Amounts in any fund established under this section shall be kept in the depository or depositories specified in the agreement and shall be subject to such trustee and other fiduciary requirements as may be specified by the Secretary. They may be invested only in interest-bearing securities approved by the Secretary; except that, if the Secretary consents thereto, an agreed percentage (not in excess of 60 percent) of the assets of the fund may be invested in the stock of domestic corporations. Such stock must be currently fully listed and registered on an exchange registered with the Securities and Exchange Commission as a national securities exchange, and must be stock which would be acquired by prudent men of discretion and intelligence in such matters who are seeking a reasonable income and the preservation of their capital. If at any time the fair market value of the stock in the

fund is more than the agreed percentage of the assets in the fund, any subsequent investment of amounts deposited in the fund, and any subsequent withdrawal from the fund, shall be made in such a way as to tend to restore the fund to a situation in which the fair market value of the stock does not exceed such agreed percentage. For purposes of this subsection, if the common stock of a corporation meets the requirements of this subsection and if the preferred stock of such corporation would meet such requirements but for the fact that it cannot be listed and registered as required because it is nonvoting stock, such preferred stock shall be treated as meeting the requirements of this subsection.

(d) Nontaxability of deposits; eligible deposits

(1) For purposes of the Internal Revenue Code of 1986--

(A) taxable income (determined without regard to this section and section 7518 of such Code [26 U.S.C. 7518]) for the taxable year shall be reduced by an amount equal to the amount deposited for the taxable year out of amounts referred to in subsection (b)(1)(A) of this section,

(B) gain from a transaction referred to in subsection (b)(1)(C) of this section, shall not be taken into account if an amount equal

to the net proceeds (as defined in joint regulations) from such transaction is deposited in the fund,

(C) the earnings (including gains and losses) from the investment and reinvestment of amounts held in the fund shall not be taken into account,

(D) the earnings and profits of any corporation (within the meaning of section 316 of such Code [26 U.S.C. 316]) shall be determined without regard to this section and section 7518 of such Code [26 U.S.C. 7518], and

(E) in applying the tax imposed by section 531 of such Code [26 U.S.C. 531] (relating to the accumulated earnings tax), amounts while held in the fund shall not be taken into account.

(2) Paragraph (1) shall apply with respect to any amount only if such amount is deposited in the fund pursuant to the agreement and not later than the time provided in joint regulations.

(e) Accounts within fund: capital account, capital gain account, and ordinary income account; limitation on capital losses

For purposes of this section--

(1) Within the fund established pursuant to this section three

accounts shall be maintained:

- (A) the capital account,
- (B) the capital gain account, and
- (C) the ordinary income account.

(2) The capital account shall consist of--

(A) amounts referred to in subsection (b)(1)(B) of this section,

(B) amounts referred to in subsection (b)(1)(C) of this section

other than that portion thereof which represents gain not taken into account by reason of subsection (d)(1)(B) of this section,

(C) the percentage applicable under section 243(a)(1) of the

Internal Revenue Code of 1986 [26 U.S.C. 243(a)(1)] of any dividend

received by the fund with respect to which the person maintaining

the fund would (but for subsection (d)(1)(C) of this section) be

allowed a deduction under section 243 of the Internal Revenue Code

of 1986 [26 U.S.C. 243], and

(D) interest income exempt from taxation under section 103 of

such Code [26 U.S.C. 103].

(3) The capital gain account shall consist of--

(A) amounts representing capital gains on assets held for more

than 6 months and referred to in subsection (b)(1)(C) or (b)(1)(D)

of this section reduced by

(B) amounts representing capital losses on assets held in the fund for more than 6 months.

(4) The ordinary income account shall consist of--

(A) amounts referred to in subsection (b)(1)(A) of this section,

(B)(i) amounts representing capital gains on assets held for 6 months or less and referred to in subsection (b)(1)(C) or (b)(1)(D) of this section, reduced by--

(ii) amounts representing capital losses on assets held in the fund for 6 months or less,

(C) interest (not including any tax-exempt interest referred to in paragraph (2)(D)) and other ordinary income (not including any dividend referred to in subparagraph (E)) received on assets held in the fund,

(D) ordinary income from a transaction described in subsection (b)(1)(C) of this section, and

(E) the portion of any dividend referred to in paragraph (2)(C) not taken into account under such paragraph.

(5) Except on termination of a fund, capital losses referred to in

paragraph (3)(B) or in paragraph (4)(B)(ii) shall be allowed only as an offset to gains referred to in paragraph (3)(A) or (4)(B)(i), respectively.

(f) Purposes of qualified withdrawals; nonqualified withdrawal treatment for nonfulfillment of substantial obligations

(1) A qualified withdrawal from the fund is one made in accordance with the terms of the agreement but only if it is for:

(A) the acquisition, construction, or reconstruction of a qualified vessel,

(B) the acquisition, construction, or reconstruction of barges and containers which are part of the complement of a qualified vessel, or

(C) the payment of the principal on indebtedness incurred in connection with the acquisition, construction or reconstruction of a qualified vessel or a barge or container which is part of the complement of a qualified vessel.

Except to the extent provided in regulations prescribed by the Secretary, subparagraph (B), and so much of subparagraph (C) as relates only to barges and containers, shall apply only with respect to barges

and containers constructed in the United States.

(2) Under joint regulations, if the Secretary determines that any substantial obligation under any agreement is not being fulfilled, he may, after notice and opportunity for hearing to the person maintaining the fund, treat the entire fund or any portion thereof as an amount withdrawn from the fund in a nonqualified withdrawal.

(g) Tax treatment of qualified withdrawals; basis: reduction

(1) Any qualified withdrawal from a fund shall be treated--

(A) first as made out of the capital account,

(B) second as made out of the capital gain account, and

(C) third as made out of the ordinary income account.

(2) If any portion of a qualified withdrawal for a vessel, barge, or container is made out of the ordinary income account, the basis of such vessel, barge, or container shall be reduced by an amount equal to such portion.

(3) If any portion of a qualified withdrawal for a vessel, barge, or container is made out of the capital gain account, the basis of such vessel, barge, or container shall be reduced by an amount equal to such portion.

(4) If any portion of a qualified withdrawal to pay the principal on any indebtedness is made out of the ordinary income account or the capital gain account, then an amount equal to the aggregate reduction which would be required by paragraphs (2) and (3) if this were a qualified withdrawal for a purpose described in such paragraphs shall be applied, in the order provided in joint regulations, to reduce the basis of vessels, barges, and containers owned by the person maintaining the fund. Any amount of a withdrawal remaining after the application of the preceding sentence shall be treated as a nonqualified withdrawal.

(5) If any property the basis of which was reduced under paragraph (2), (3), or (4) is disposed of, any gain realized on such disposition, to the extent it does not exceed the aggregate reduction in the basis of such property under such paragraphs, shall be treated as an amount referred to in subsection (h)(3)(A) of this section which was withdrawn on the date of such disposition. Subject to such conditions and requirements as may be provided in joint regulations, the preceding sentence shall not apply to a disposition where there is a redeposit in an amount determined under joint regulations which will, insofar as practicable, restore the fund to the position it was in before the withdrawal.

(h) Tax treatment of nonqualified withdrawals; FIFO and LIFO bases; interest rate; amounts not withdrawn after 25 years; highest marginal rate of tax

(1) Except as provided in subsection (i) of this section, any withdrawal from a fund which is not a qualified withdrawal shall be treated as a nonqualified withdrawal.

(2) Any nonqualified withdrawal from a fund shall be treated--

(A) first as made out of the ordinary income account,

(B) second as made out of the capital gain account, and

(C) third as made out of the capital account.

For purposes of this section, items withdrawn from any account shall be treated as withdrawn on a first-in-first-out basis; except that (i) any nonqualified withdrawal for research, development, and design expenses incident to new and advanced ship design, machinery and equipment, and (ii) any amount treated as a nonqualified withdrawal under the second sentence of subsection (g)(4) of this section, shall be treated as withdrawn on a last-in-first-out basis.

(3) For purposes of the Internal Revenue Code of 1986--

(A) any amount referred to in paragraph (2)(A) shall be included in income as an item of ordinary income for the taxable year in

which the withdrawal is made,

(B) any amount referred to in paragraph (2)(B) shall be included in income for the taxable year in which the withdrawal is made as an item of gain realized during such year from the disposition of an asset held for more than 6 months, and

(C) for the period on or before the last date prescribed for payment of tax for the taxable year in which this withdrawal is made--

(i) no interest shall be payable under section 6601 of such Code [26 U.S.C. 6601] and no addition to the tax shall be payable under section 6651 of such Code [26 U.S.C. 6651],

(ii) interest on the amount of the additional tax attributable to any item referred to in subparagraph (A) or (B) shall be paid at the applicable rate (as defined in paragraph (4)) from the last date prescribed for payment of the tax for the taxable year for which such item was deposited in the fund, and

(iii) no interest shall be payable on amounts referred to in clauses (i) and (ii) of paragraph (2) or in the case of any nonqualified withdrawal arising from the application of the

recapture provision of section 1176(5) of this Appendix as in effect on December 31, 1969.

(4) For purposes of paragraph (3)(C)(ii), the applicable rate of interest for any nonqualified withdrawal--

(A) made in a taxable year beginning in 1970 or 1971 is 8 percent, or

(B) made in a taxable year beginning after 1971, shall be determined and published jointly by the Secretary of the Treasury and the Secretary and shall bear a relationship to 8 percent which the Secretaries determine under joint regulations to be comparable to the relationship which the money rates and investment yields for the calendar year immediately preceding the beginning of the taxable year bear to the money rates and investment yields for the calendar year 1970.

(5) Amount not withdrawn from fund after 25 years from deposit taxed as nonqualified withdrawal.--

(A) In general.--The applicable percentage of any amount which remains in a capital construction fund at the close of the 26th, 27th, 28th, 29th, or 30th taxable year following the taxable year for which such amount was deposited shall be treated as a

nonqualified withdrawal in accordance with the following table:

If the amount remains in the fund at the The applicable

close of the-- percentage is--

26th taxable year..... 20

percent

27th taxable year..... 40

percent

28th taxable year..... 60

percent

29th taxable year..... 80

percent

30th taxable year..... 100

percent.

(B) Earnings treated as deposits.--The earnings of any capital

construction fund for any taxable year (other than net gains) shall

be treated for purposes of this paragraph as an amount deposited for

such taxable year.

(C) Amounts committed treated as withdrawn.--For purposes of

subparagraph (A), an amount shall not be treated as remaining in a

capital construction fund at the close of any taxable year to the extent there is a binding contract at the close of such year for a qualified withdrawal of such amount with respect to an identified item for which such withdrawal may be made.

(D) Authority to treat excess funds as withdrawn.--If the Secretary determines that the balance in any capital construction fund exceeds the amount which is appropriate to meet the vessel construction program objectives of the person who established such fund, the amount of such excess shall be treated as a nonqualified withdrawal under subparagraph (A) unless such person develops appropriate program objectives within 3 years to dissipate such excess.

(E) Amounts in fund on January 1, 1987.--For purposes of this paragraph, all amounts in a capital construction fund on January 1, 1987, shall be treated as deposited in such fund on such date.

(6) Nonqualified withdrawals taxed at highest marginal rate.--

(A) In general.--In the case of any taxable year for which there is a nonqualified withdrawal (including any amount so treated under paragraph (5)), the tax imposed by chapter 1 of the Internal Revenue Code of 1986 [26 U.S.C. 1 et seq.] shall be determined--

(i) by excluding such withdrawal from gross income, and

(ii) by increasing the tax imposed by chapter 1 of such Code by the product of the amount of such withdrawal and the highest rate of tax specified in section 1 (section 11 in the case of a corporation) of such Code [26 U.S.C. 1, 11].

With respect to the portion of any nonqualified withdrawal made out of the capital gain account during a taxable year to which section 1(h) or 1201(a) of such Code [26 U.S.C. 1(h), 1201(a)] applies, the rate of tax taken into account under the preceding sentence shall not exceed 28 percent (34 percent in the case of a corporation).

(B) Tax benefit rule.--If any portion of a nonqualified withdrawal is properly attributable to deposits (other than earnings on deposits) made by the taxpayer in any taxable year which did not reduce the taxpayer's liability for tax under chapter 1 [26 U.S.C. 1 et seq.] for any taxable year preceding the taxable year in which such withdrawal occurs--

(i) such portion shall not be taken into account under subparagraph (A), and

(ii) an amount equal to such portion shall be treated as allowed as a deduction under section 172 of such Code [26 U.S.C.

172] for the taxable year in which such withdrawal occurs.

(C) Coordination with deduction for net operating losses.--Any nonqualified withdrawal excluded from gross income under subparagraph (A) shall be excluded in determining taxable income under section 172(b)(2) of the Internal Revenue Code of 1986 [26 U.S.C. 172(b)(2)].

(i) Corporate reorganizations and partnership changes

Under joint regulations--

(1) a transfer of a fund from one person to another person in a transaction to which section 381 of the Internal Revenue Code of 1986 [26 U.S.C. 381] applies may be treated as if such transaction did not constitute a nonqualified withdrawal, and

(2) a similar rule shall be applied in the case of a continuation of a partnership (within the meaning of subchapter K \1\ of such Code [26 U.S.C. 701 et seq.]).

\1\ So in original. Probably should be followed by ``of chapter 1".

(j) Treatment of existing funds; relation of old to new fund

(1) Any person who was maintaining a fund or funds (hereinafter in this subsection referred to as "old fund") under this section (as in effect before the enactment of this subsection) may elect to continue such old fund but--

(A) may not hold moneys in the old fund beyond the expiration date provided in the agreement under which such old fund is maintained (determined without regard to any extension or renewal entered into after April 14, 1970),

(B) may not simultaneously maintain such old fund and a new fund established under this section, and

(C) if he enters into an agreement under this section to establish a new fund, may agree to the extension of such agreement to some or all of the amounts in the old fund.

(2) In the case of any extension of an agreement pursuant to paragraph (1)(C), each item in the old fund to be transferred shall be transferred in a nontaxable transaction to the appropriate account in the new fund established under this section. For purposes of subsection (h)(3)(C) of this section, the date of the deposit of any item so transferred shall be July 1, 1971, or the date of the deposit in the old

fund, whichever is the later.

(k) Definitions

For purposes of this section--

(1) The term ``eligible vessel" means any vessel--

(A) constructed in the United States and, if reconstructed,

reconstructed in the United States,

(B) documented under the laws of the United States, and

(C) operated in the foreign or domestic commerce of the United

States or in the fisheries of the United States.

Any vessel which (i) was constructed outside of the United States but documented under the laws of the United States on April 15, 1970, or

(ii) constructed outside the United States for use in the United States

foreign trade pursuant to a contract entered into before April 15, 1970,

shall be treated as satisfying the requirements of subparagraph (A) of

this paragraph and the requirements of subparagraph (A) of paragraph

(2).

(2) The term ``qualified vessel" means any vessel--

(A) constructed in the United States and, if reconstructed,

reconstructed in the United States,

(B) documented under the laws of the United States, and

(C) which the person maintaining the fund agrees with the

Secretary will be operated in the United States foreign, Great

Lakes, or noncontiguous domestic trade or in the fisheries of the

nited States.

(3) The term "agreement vessel" means any eligible vessel or

qualified vessel which is subject to an agreement entered into under

this section.

(4) The term "United States", when used in a geographical sense,

means the continental United States including Alaska, Hawaii, and Puerto

Rico.

(5) The term "United States foreign trade" includes (but is not

limited to) those areas in domestic trade in which a vessel built with

construction-differential subsidy is permitted to operate under the

first sentence of section 1156 of this Appendix.

(6) The term "joint regulations" means regulations prescribed

under subsection (l) of this section.

(7) The term "vessel" includes cargo handling equipment which the

Secretary determines is intended for use primarily on the vessel. The

term "vessel" also includes an ocean-going towing vessel or an ocean-

going barge or comparable towing vessel or barge operated on the Great Lakes.

(8) The term "noncontiguous trade" means (i) trade between the contiguous forty-eight States on the one hand and Alaska, Hawaii, Puerto Rico and the insular territories and possessions of the United States on the other hand, and (ii) trade from any point in Alaska, Hawaii, Puerto Rico, and such territories and possessions to any other point in Alaska, Hawaii, Puerto Rico, and such territories and possessions.

(9) The term "Secretary" means the Secretary of Commerce with respect to eligible or qualified vessels operated or to be operated in the fisheries of the United States, and the Secretary of Transportation with respect to all other vessels.

(l) Records; reports; rules and regulations; termination of agreement upon changes in regulations with substantial effect on rights or obligations

Each person maintaining a fund under this section shall keep such records and shall make such reports as the Secretary or the Secretary of the Treasury shall require. The Secretary of the Treasury and the Secretary shall jointly prescribe all rules and regulations, not inconsistent with the foregoing provisions of this section, as may be

necessary or appropriate to the determination of tax liability under this section. If, after an agreement has been entered into under this section, a change is made either in the joint regulations or in the regulations prescribed by the Secretary under this section which could have a substantial effect on the rights or obligations of any person maintaining a fund under this section, such person may terminate such agreement.

(m) Departmental reports and certification

(1) In general

For each calendar year, the Secretaries shall each provide the Secretary of the Treasury, within 120 days after the close of such calendar year, a written report with respect to those capital construction funds that are under their jurisdiction.

(2) Contents of reports

Each report shall set forth the name and taxpayer identification number of each person--

(A) establishing a capital construction fund during such calendar year;

(B) maintaining a capital construction fund as of the last day of such calendar year;

(C) terminating a capital construction fund during such calendar year;

(D) making any withdrawal from or deposit into (and the amounts thereof) a capital construction fund during such calendar year; or

(E) with respect to which a determination has been made during such calendar year that such person has failed to fulfill a substantial obligation under any capital construction fund agreement to which such person is a party.

(June 29, 1936, ch. 858, title VI, Sec. 607, 49 Stat. 2005; June 23, 1938, ch. 600, Secs. 23-28, 52 Stat. 960, 961; Aug. 4, 1939, ch. 417, Sec. 10, 53 Stat. 1185; July 17, 1952, ch. 939, Secs. 17-19, 66 Stat. 764, 765; Aug. 14, 1958, Pub. L. 85-637, 72 Stat. 592; June 12, 1960, Pub. L. 86-518, Sec. 1, 74 Stat. 216; May 27, 1961, Pub. L. 87-45, Sec. 6, 75 Stat. 91; Sept. 21, 1961, Pub. L. 87-271, 75 Stat. 570; Oct. 21, 1970, Pub. L. 91-469, Sec. 21(a), 84 Stat. 1026; Oct. 1, 1973, Pub. L. 93-116, 87 Stat. 421; Aug. 6, 1981, Pub. L. 97-31, Sec. 12(97), 95 Stat. 162; Oct. 22, 1986, Pub. L. 99-514, Sec. 2, title II, Sec. 261(d),

(e), 100 Stat. 2095, 2214; Nov. 10, 1988, Pub. L. 100-647, title I, Sec. 1002(m)(2), 102 Stat. 3382; Nov. 5, 1990, Pub. L. 101-508, title XI, Sec. 11101(d)(7)(B), 104 Stat. 1388-405.)

References in Text

The Internal Revenue Code of 1986, referred to in subsecs. (d)(1) and (h)(3), is classified generally to Title 26, Internal Revenue Code. Section 103, referred to in subsec. (e)(2)(D), which related to interest on certain governmental obligations was amended generally by Pub. L. 99-514, title XIII, Sec. 1301(a), Oct. 22, 1986, 100 Stat. 2602, and as so amended relates to interest on State and local bonds.

Amendments

1990--Subsec. (h)(6)(A). Pub. L. 101-508 substituted ``section 1(h)" for ``section 1(j)".

1988--Subsec. (h)(6)(A). Pub. L. 100-647 substituted ``section 1(j)" for ``section 1(i)".

1986--Subsec. (b)(1)(A), (B). Pub. L. 99-514, Sec. 2, substituted ``Internal Revenue Code of 1986" for ``Internal Revenue Code of 1954".

Subsec. (d)(1). Pub. L. 99-514, Sec. 2, substituted ``Internal Revenue Code of 1986" for ``Internal Revenue Code of 1954".

Subsec. (d)(1)(A), (D). Pub. L. 99-514, Sec. 261(e)(1), (2),

inserted ``and section 7518 of such Code".

Subsec. (e)(2)(C). Pub. L. 99-514, Sec. 261(e)(3), substituted ``the

percentage applicable under section 243(a)(1) of the Internal Revenue

Code of 1986" for ``85 percent".

Pub. L. 99-514, Sec. 2, substituted ``section 243 of the Internal

Revenue Code of 1986" for ``section 243 of the Internal Revenue Code of

1954".

Subsec. (e)(4)(E). Pub. L. 99-514, Sec. 261(e)(4), amended subpar.

(E) generally. Prior to amendment, subpar. (E) read as follow: ``15

percent of any dividend referred to in paragraph (2)(C)."

Subsec. (g)(3). Pub. L. 99-514, Sec. 261(e)(5), amended par. (3)

generally. Prior to amendment, par. (3) read as follows: ``If any

portion of a qualified withdrawal for a vessel, barge, or container is

made out of the capital gain account, the basis of such vessel, barge,

or container shall be reduced by an amount equal to--

``(A) Five-eighths of such portion, in the case of a corporation

(other than an electing small business corporation, as defined in

section 1371 of the Internal Revenue Code of 1954, or

``(B) One-half of such portion, in the case of any other

person."

Subsec. (h)(3). Pub. L. 99-514, Sec. 2, substituted ``Internal Revenue Code of 1986" for ``Internal Revenue Code of 1954".

Subsec. (h)(5), (6). Pub. L. 99-514, Sec. 261(e)(6), added pars. (5) and (6).

Subsec. (i)(1). Pub. L. 99-514, Sec. 2, substituted ``Internal Revenue Code of 1986" for ``Internal Revenue Code of 1954".

Subsec. (m). Pub. L. 99-514, Sec. 261(d), added subsec. (m).

1981--Subsecs. (a), (c), (f), (h)(4). Pub. L. 97-31, Sec. 12(97)(A), substituted ``Secretary" for ``Secretary of Commerce" wherever appearing.

Subsec. (k). Pub. L. 97-31, Sec. 12(97), substituted in pars. (2)(C) and (7) ``Secretary" for ``Secretary of Commerce" and added par. (9).

Subsec. (l). Pub. L. 97-31, Sec. 12(97)(A), substituted ``Secretary" for ``Secretary of Commerce" wherever appearing.

1973--Subsec. (k)(8). Pub. L. 93-116 substituted ``(ii) trade from any point in Alaska, Hawaii, Puerto Rico, and such territories and possessions to any other point in Alaska, Hawaii, Puerto Rico, and such territories and possessions." for ``(ii) trade between Alaska, Hawaii, and Puerto Rico and such territories and possessions and (iii) trade between the islands of Hawaii."

1970--Pub. L. 91-469 revised tax deferred reserve fund provisions generally, extended tax deferral privilege to vessels operated in nonsubsidized foreign trade noncontiguous domestic trade, Great Lakes trade, and in fisheries, built in the United States, and documented under her laws, and substituted a new statutory framework consisting of subsecs. (a) to (l) for determination of tax status of deposits into and withdrawals from the fund for former subsecs. (a) to (h) and providing as follows:

Subsec. (a), a capital construction fund, agreement rules, persons eligible, replacement, additional, or reconstructed vessels for prescribed trade and fishery operations, amount of deposits, annual limitation, and conditions and requirements for deposits and withdrawals, subsec. (a) formerly permitting a 10 percent distribution of net profits;

Subsec. (b), ceiling on deposits, deposits of lessees, and definition of "agreement vessel", subsec. (b) formerly providing for a capital reserve fund, deposits, and allowable disbursements;

Subsec. (c), investment requirements, depositories, fiduciary requirements, investment in interest-bearing certificates (formerly provided in former subsec. (d)(2) of this section), stock investments,

including common stock treatment of preferred issues, percentage for domestic issues, listing and registration, prudent man acquisitions (provisions formerly covered in former subsec. (d)(3)(A) of this section), and value and percentage equilibrium, subsec. (c) formerly providing for creation of a special reserve fund, deposits, and allowable disbursements;

Subsec. (d), nontaxability of deposits and eligible deposits, subsec. (d) formerly providing rules and regulations for administration of reserve funds and investment of funds, now covered in subsec. (c) of this section;

Subsec. (e), capital account, capital gain account, and ordinary income account within the capital construction fund and limitation on losses, subsec. (e) formerly providing for withdrawals from capital reserve fund to meet needs due to operating losses;

Subsec. (f), purposes of qualified withdrawals and nonqualified withdrawal treatment for nonfulfillment of substantial obligations, subsec. (f) formerly providing for title to reserve funds on termination of contract;

Subsec. (g), tax treatment of qualified withdrawals and reduction of basis, subsec. (g) formerly providing for increase and transfer of

reserve funds and interest on overpayment of taxes;

Subsec. (h), tax treatment of nonqualified withdrawals, FIFO and LIFO bases, and interest rate, subsec. (h) formerly providing for exemption of reserve funds from taxation, in effect a tax deferral;

Subsec. (i), corporate reorganizations and partnership changes;

Subsec. (j), treatment of existing funds and relation of old to new funds;

Subsec. (k), definitions; and

Subsec. (l), records, reports, rules, and regulations, and

termination of agreement upon changes in regulations with substantial effect on rights or obligations.

1961--Subsec. (b). Pub. L. 87-271 authorized the contractor, upon consent of the Secretary of Commerce, to pay amounts from the capital reserve fund for research, development, and design expenses for new and advanced ship design machinery and equipment, purchase of cargo containers delivered after June 30, 1959, payment of principal on indebtedness incurred for containers, and for reimbursing the contractor's general funds for expenditures for such purchases or payments, and required such cargo containers, to the extent paid for out of the capital reserve fund, to be treated as vessels for purpose of deposits and withdrawals from the fund, except that depreciation thereon

shall be based on life expectancy used for such containers in determination of ``net earnings" in subsec. (d)(1) of this section.

Pub. L. 87-45 inserted ``and on cruises, if any, authorized under section 1183 of this Appendix" after ``route or service approved by the Secretary" in second par.

1960--Subsec. (b). Pub. L. 86-518 substituted ``twenty-five-year life expectancy" for ``twenty-year life expectancy".

1958--Subsec. (d). Pub. L. 85-637 designated first and second paragraphs as subdivisions (1) and (2), and added subdivision (3).

1952--Subsec. (b). Act July 17, 1952, Sec. 17, permitted recomputation of life-expectancy of a reconstructed or reconditioned vessel in use under an operating-differential subsidy contract, and provided for recomputation of depreciation changes.

Subsec. (d). Act July 17, 1952, Sec. 18, substituted ``as provided for in section 1177(b) of this Appendix" after ``life of the vessel" for ``being twenty years".

Subsec. (g). Act July 17, 1952, Sec. 19, barred payment of interest by Government on overpayment of taxes resulting from voluntary deposits of earnings.

1939--Subsec. (c)(3). Act Aug. 4, 1939, permitted payment from the

capital reserve fund, and authorized payment from other assets of the contractor if assets have not been repaid to the reserve funds, or if prepayments of amounts not due before one year after the date of termination of the contract have been made from the capital reserve funds.

1938--Subsec. (b). Act June 23, 1938, Secs. 23, 24, substituted ``insurance and indemnities" for ``insurance indemnities" in first par., and inserted provisions requiring deposit of proceeds of any sale or other disposition of a vessel in the capital reserve funds, and to permit the contractor to pay from the fund any sums owing but not yet due on notes secured by mortgages on subsidized vessels.

Subsec. (c). Act June 23, 1938, Sec. 25, substituted ``If the profits, without regard to capital gains and capital losses, earned by the business of the subsidized vessels and services incident thereto exceed 10 per centum per annum and exceed the percentage of profits deposited in the capital reserve fund, as provided in subsection (b) of this section, the contractor shall deposit annually such excess profits in this reserve fund" for ``In this reserve fund, the contractor shall deposit annually the profits earned by the business of the subsidized vessels and services incident thereto in excess of 10 per centum per

annum and in excess of the percentage of profits deposited in the capital reserve fund, as provided in subsection (b) of this section", in second par.

Subsec. (c)(2). Act June 23, 1938, Sec. 26, substituted "will be made up" for "will not be made up".

Subsecs. (f), (g). Act June 23, 1938, Sec. 27, added subsecs. (f) and (g). Former subsec. (f) redesignated (h).

Subsec. (h). Act June 23, 1938, Sec. 28, redesignated former subsec. (f) as subsec. (h) and made earnings withdrawn from the special reserve fund taxable as if earned during the year of withdrawal from the fund.

Effective Date of 1990 Amendment

Amendment by Pub. L. 101-508 applicable to taxable years beginning after Dec. 31, 1990, see section 11101(e) of Pub. L. 101-508, set out as a note under section 1 of Title 26, Internal Revenue Code.

Effective Date of 1988 Amendment

Amendment by Pub. L. 100-647 effective, except as otherwise provided, as if included in the provision of the Tax Reform Act of 1986, Pub. L. 99-514, to which such amendment relates, see section 1019(a) of Pub. L. 100-647, set out as a note under section 1 of Title 26, Internal

Revenue Code.

Effective Date of 1986 Amendment

Amendment by section 261(d), (e) of Pub. L. 99-514 applicable to taxable years beginning after Dec. 31, 1986, see section 261(g) of Pub. L. 99-514, set out as an Effective Date note under section 7518 of Title 26, Internal Revenue Code.

Effective Date of 1970 Amendment

Section 21(b) of Pub. L. 91-469 provided that: ``The amendment made by subsection (a) [amending this section] shall apply to taxable years beginning after December 31, 1969."

Effective Date of 1960 Amendment

Amendment by Pub. L. 86-518 applicable only to vessels delivered by the shipbuilder on or after Jan. 1, 1946, and with respect to such vessels shall become effective on Jan. 1, 1960, and with respect to vessels delivered by the shipbuilder before Jan. 1, 1946, the provisions of this chapter existing immediately before June 12, 1960, shall continue in effect, see section 8(a) of Pub. L. 86-518, set out as a note under section 1125 of this Appendix.

Merchant Marine Capital Construction Funds

For coordination of application of Internal Revenue Code of 1986 with capital construction program under this chapter, see section 261(a) of Pub. L. 99-514, set out as a note under section 7518 of Title 26, Internal Revenue Code.

Deposits Into Capital Reserve Fund

Pub. L. 92-507, Sec. 6, Oct. 19, 1972, 86 Stat. 917, provided that:

“Nothing in this Act [enacting this note and amending subchapter XI of this chapter] shall limit or affect the right of an obligor who maintains a capital reserve fund under section 607 of the Merchant Marine Act, 1936 [this section] to make deposits of the proceeds of guaranteed obligations into such capital reserve fund as provided in subparagraph (c) of condition (6) of section 1107 of the Merchant Marine Act, 1936 [subparagraph (c) of condition (6) of section 1276a of former Title 46, Shipping], as in effect prior to the effective date of this Act [Oct. 9, 1972].”

Rate of Depreciation for Vessels Delivered by Shipbuilder On or After January 1, 1946, and Before January 1, 1960

For provisions relating to computation of depreciation with respect to vessels delivered by the shipbuilder on or after Jan. 1, 1946, and before Jan. 1, 1960, see section 8(b) of Pub. L. 86-518, set out as a note under section 1125 of this Appendix.

Revision of Contracts, Commitments To Insure Mortgages, Mortgages, and

Mortgage Insurance Contracts Entered Into Prior to June 12, 1960

For provisions authorizing revision, see section 8(c) of Pub. L. 86-518, set out as a note under section 1125 of this Appendix.

Commercial Expectancy or Period of Depreciation of Tankers and Other

Liquid Bulk Carriers

Nothing in any amendment made by Pub. L. 86-518 to operate or be interpreted to change from 20 to 25 year the provisions of this chapter relating to the commercial expectancy or period of depreciation of any tanker or other liquid bulk carrier, see section 9 of Pub. L. 86-518, set out as a note under section 1125 of this Appendix.

Section Referred to in Other Sections

This section is referred to in sections 1177-1, 1185, 1244 of this

Appendix; title 26 sections 56, 137, 543, 7518; title 42 section 9141.

[Code of Federal Regulations]

[Title 50, Volume 2, Parts 200 to 599]

[Revised as of October 1, 1996]

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TITLE 50--WILDLIFE AND FISHERIES

CHAPTER II--NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, DEPARTMENT

OF COMMERCE

PART 253--FISHERIES ASSISTANCE PROGRAMS

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Authority: 46 U.S.C. 1271-1279 and 16 U.S.C. 4101 et seq.

Source: 61 FR 19172, May 1, 1996, unless otherwise noted.

[Subpart A--General](#)

Sec. 253.1 Purpose.

(a) The regulations in this part pertain to fisheries assistance programs. Subpart B of these rules governs the Fisheries Obligation Guarantee Program, which guarantees the repayment of certain long-term fisheries and aquacultural debts. This allows those debts to be placed in the same private investment market that buys U.S. Treasury securities, where interest rates are lower and maturities are longer. The Program does all credit work and holds and services all credit collateral. The Program's guarantee fee makes it self-supporting.

(b) Subpart C implements Title III of Public Law 99-659 (16 U.S.C.

4100 et seq.), which has two objectives:

(1) To promote and encourage State activities in support of the management of interjurisdictional fishery resources identified in interstate or Federal fishery management plans; and

(2) To promote and encourage management of interjurisdictional fishery resources throughout their range.

(3) The scope of this part includes guidance on making financial assistance awards to States or Interstate Commissions to undertake projects in support of management of interjurisdictional fishery resources in both the exclusive economic zone (EEZ) and State waters, and to encourage States to enter into enforcement agreements with either the Department of Commerce or the Department of the Interior.

[Subpart B--Fisheries Obligation Guarantee Program](#)

Sec. 253.10 Definitions.

The terms used in this subpart have the following meanings:

Act means Title XI of the Merchant Marine Act, 1936, as amended.

Actual cost means project cost (less a 10-percent salvage value),

depreciated (excluding land) on a straightline basis at 1-year intervals

over the project property's useful life including architectural, engineering, inspection, delivery, outfitting, and interest costs, as well as the cost of any consulting contract the Division requires.

Applicant means the one applying for a guarantee (the prospective notemaker).

Application means an application for a guarantee.

Application fee means 0.5 percent of the dollar amount of an application.

Aquacultural facility means land, land structures, water structures, water craft built in the U.S., and equipment for hatching, caring for, or growing fish under controlled circumstances

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and for its unloading, receiving, holding, processing, or distribution for commercial purposes.

CCF means Capital Construction Fund.

Citizen means a citizen or national of the U.S. who is otherwise also a citizen for the purpose of documenting a vessel in the coastwise trade under section 2 of the Shipping Act, 1916, as amended.

Contributory project means any project that contributes to developing the U.S. fishing industry by: Causing any vessel to catch

less overutilized species than before; applying new technology; improving safety or fuel efficiency; making project property more efficient, productive, or competitive; potentially increasing fisheries exports; helping develop an underutilized fishery; or enhancing financial stability, financial performance, growth, productivity, or any other business attribute.

Demand means a noteholder's request that the guarantor pay a guaranteed note's full principal and interest balance.

Division means the Financial Services Division, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Dual Use CCF means a CCF agreement whose qualified vessel is project property and whose deposits are pledged to repayment of the U.S. note.

Facility means a fisheries facility or aquacultural facility.

Financing means the first permanent debt placed on project property for financing its project cost.

Fish means all forms of aquatic animal and plant life, except marine mammals and birds.

Fishery facility means land, land structures, water craft that do not fish, and equipment used for transporting, unloading, receiving,

holding, processing, or distributing fish for commercial purposes

(including any fishery facility for passenger fishing).

Fishing means catching wild fish for commercial purposes (including passenger fishing).

Guarantee means the guarantor's contractual promise, backed by the full faith and credit of the United States, to repay a guaranteed note if a notemaker fails to repay it as agreed.

Guarantee fee means 1 percent of a guaranteed note's average annual unpaid principal balance.

Guaranteed note means a promissory note from a notemaker to a noteholder whose repayment the guarantor guarantees.

Guarantor means the U.S., acting, under the Act, by and through the Secretary of Commerce.

Industry means the fisheries and/or aquacultural industry.

Noteholder means a guaranteed note payee.

Notemaker means a guaranteed note payor.

Passengerfishing means carrying in vessels for commercial purposes passengers who catch fish.

Program means the Fisheries Obligation Guarantee Program.

Project means the construction of new project property or the refurbishing or purchase of used project property including

architectural, engineering, inspection, delivery, outfitting, and interest costs, as well as the cost of any consulting contract the Division requires.

Project property means the vessel or facility involved in a project whose actual cost is eligible under the Act for guarantee and controls the dollar amount of a guaranteed note.

Property means the project property and all other property pledged as security for a U.S. note.

Qualified means acceptable, in the Division's credit risk judgment, and otherwise meeting the Division's requirements for guarantee.

Refinancing means newer debt that either replaces older debt or reimburses applicants for previous expenditures.

Refinancing/assumption fee means 0.25 percent of the principal amount of a guaranteed note to be refinanced or assumed.

Refurbishing means any reconstruction, reconditioning, or other improvement of used project property involving more than routine repair or maintenance.

Security documents mean all collateral securing the U.S. note's repayment and all other assurances, undertakings, and

contractual arrangements associated with the U.S. note.

Underutilized fishery means:

(1) For a vessel, any fish species harvested below its sustainable yield.

(2) For a fisheries facility, any facility using that species or any for which aggregate facilities are inadequate to best use harvests of that or any other species.

U.S. means the United States of America and, for citizenship purposes, includes the Commonwealth of Puerto Rico; American Samoa; the U.S. Virgin Islands; Guam; the Republic of the Marshal Islands; the Federated States of Micronesia; the Commonwealth of the Northern Mariana Islands; any other commonwealth, territory, or possession of the United States; or any political subdivision of any of them.

U.S. note means a promissory note payable by the notemaker to the guarantor.

Useful life means the period during which project property will, as determined by the Division, remain economically productive.

Vessel means any vessel documented under U.S. law and used for fishing.

Wise use means the wise use of fisheries resources and their

development, advancement, management, conservation, and protection.

Sec. 253.11 Guarantee policy.

(a) A guarantee financing or refinancing up to 80 percent of a project's actual cost shall be available to any qualified citizen otherwise eligible under the Act and these rules, except:

(1) Vessel construction. The Program will not finance this project cost. The Program will only refinance this project cost for an existing vessel whose previous construction cost has already been financed (or otherwise paid). Refinancing this project cost for a vessel that already exists is not inconsistent with wise use, but financing it may be.

(2) Vessel refurbishing that materially increases an existing vessel's harvesting capacity. The Program will not finance this project cost. The Program will only refinance this project cost for a vessel whose previous refurbishing cost has already been financed (or otherwise paid). Refinancing this project cost is not inconsistent with wise use, but financing it may be.

(3) Purchasing a used vessel or used fishery facility. The Program will neither finance nor refinance this project cost (except for a used vessel or fishery facility that the Program purchased and is reselling),

unless the used vessel or fishery facility will be refurbished in the United States and will be a contributory project or it will be used in an underutilized fishery.

(b) Every project, other than those specified in paragraphs (a) (1) and (2) of this section, is consistent with wise use and every project, other than those specifically precluded in paragraphs (a) (1) and (2) of this section, may be financed, as well as refinanced.

Sec. 253.12 Guaranteed note, U.S. note, and security documents.

(a) Guaranteed note--(1) Principal. This may not exceed 80 percent of actual cost, but may, in the Division's credit judgment, be less.

(2) Maturity. This may not exceed 25 years, but shall not exceed the project property's useful life and may, in the Division's credit judgment, be less.

(3) Interest rate. This may not exceed the amount the Division deems reasonable.

(4) Prepayment penalty. The Division will allow a reasonable prepayment penalty, but the guarantor will not guarantee a notemaker's payment of it.

(5) Form. This will be the simple promissory note (with the guarantee attached) the Division prescribes, promising only to pay

principal, interest, and prepayment penalty.

(6) Sole security. The guaranteed note and the guarantee will be the noteholder's sole security.

(b) U.S. note and security documents--(1) Form. The U.S. note and security documents will be in the form the Division prescribes.

(2) U.S. note. This exists to evidence the notemaker's actual and contingent liability to the guarantor (contingent if the guarantor does not pay the guaranteed note (including any portion of it), on the notemaker's behalf or if the guarantor does not advance any other amounts or incur any other expenses on the notemaker's behalf to protect

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the U.S. or accommodate the notemaker; actual if, and to the same monetary extent that, the guarantor does). Payment of the guaranteed note by anyone but the guarantor will amortize the original principal balance (and interest accruing on it) of the U.S. note to the same extent that it amortizes the guaranteed note. The U.S note will, among other things, contain provisions for adding to its principal balance all amounts the Program advances, or expenses it incurs, to protect the U.S. or accommodate the notemaker.

(3) Security documents. The Division will, at a minimum, require a pledge of all project property or adequate substitute collateral). The Division will require such other security as it deems the circumstances of each notemaker and project require to protect the U.S. All security documents will secure the U.S. note. The security documents will, among other things, contain provisions for adding to the U.S. note all Program advances, expenditures, and expenses required to protect the U.S. or accommodate the notemaker.

(4) Recourse. Significant Program reliance, as a secondary means of repayment, on the net worths of parties other than the notemaker will ordinarily require secured recourse against those net worths. Recourse may be by a repayment guarantee or irrevocable letter of credit.

Ordinarily, the Division will require recourse against: All major shareholders of a closely-held corporate notemaker, the parent corporation of a subsidiary corporate notemaker without substantial pledged assets other than the project property, and all major limited partners. The Division may also require recourse against others it deems necessary to protect the U.S. The principal parties in interest, who ultimately stand most to benefit from the project, should ordinarily be held financially accountable for the project's performance. Where otherwise appropriate recourse is unavailable, the conservatively

projected net liquidating value of the notemaker's assets pledged to the Program must, in the Division's credit judgment, substantially exceed all projected Program exposure.

(c) Dual-use CCF. For a vessel, the Division may require annually depositing some portion of the project property's net income into a dual-use CCF. A dual-use CCF provides the normal CCF tax-deferral benefits, but also both gives the Program control of CCF withdrawals and recourse against CCF deposits and ensures an emergency refurbishing reserve (tax-deferred) for project property.

Sec. 253.13 Ability and experience requirements.

A notemaker and the majority of its principals must generally have the ability, experience, resources, character, reputation, and other qualifications the Division deems necessary for successfully operating the project property and protecting the U.S. The Program will ordinarily not provide guarantees: For venture capital purposes; to a notemaker whose principals are all from outside the industry; or for a notemaker the majority of whose principals cannot document successful industry ability and experience of a duration, degree, and nature consistent with protecting the U.S.

Sec. 253.14 Economic and financial requirements.

(a) Income and expense projections. The Division's conservative income and expense projections for the project property's operation must prospectively indicate net earnings that can service all debt, properly maintain the project property, and protect the U.S. against the industry's cyclical economics and other risks of loss.

(b) Working capital. The Division's conservative assessment of an applicant's financial condition must indicate initial working capital prospectively sufficient to provide for the project property to achieve net earnings projections, fund all foreseeable contingencies, and protect the U.S. At the Division's discretion, some portion of projected working capital needs may be met by something other than current assets minus current liabilities (i.e., by a line or letter of credit, noncurrent assets readily capable of generating working capital, a guarantor with sufficient financial resources, etc.).

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(c) Audited financial statements. These will ordinarily be required for any notemaker with large or financially extensive operations whose financial condition the Division believes it cannot otherwise assess

with reasonable certainty.

(d) Consultant services. Infrequently, expert consulting services may be necessary to help the Division assess a project's economic, technical, or financial feasibility. The Division will select and employ the necessary consultant, but require the applicant to reimburse the Division. A subsequently approved application will not be closed until the applicant reimburses the Division. This cost may, at the Division's discretion, be included in a guaranteed note's amount. For a declined application, the Division may reimburse itself from the remaining 25 percent of the application fee.

Sec. 253.15 Miscellaneous.

(a) Applicant. Only the legal title holder of project property (or the lessee of an appropriate long-term financing lease) may apply for a guarantee. Applicants must submit an "Application for Fisheries Obligation Program Guarantee" to the appropriate NMFS Regional Financial Services Branch to be considered for a guaranteed loan.

(b) Investigation and approval. The Division shall do a due diligence investigation of every application it accepts and determine if, in the Division's sole judgment, the application is eligible and qualified. Applications the Division deems ineligible or unqualified

will be declined. The Division will approve eligible and qualified applications based on the applicability of the information obtained during the application and investigation process to the programmatic goals and financial requirements of the program and under terms and conditions that, in the Division's sole discretion, protect the U.S. The Division will state these terms and conditions in its approval in principal letter.

(c) Insurance. All property and other risks shall be continuously insured during the term of the U.S. note. Insurers must be acceptable to the Division. Insurance must be in such forms and amounts and against such risks as the Division deems necessary to protect the U.S. Insurance must be endorsed to include the requirements the U.S., as respects its interest only, deems necessary to protect the U.S. (e.g., the Program will ordinarily be an additional insured as well as the sole loss payee for the amount of its interest; cancellation will require 20 days' advance written notice; vessel seaworthiness will be admitted, and the Program will be adequately protected against other insureds' breaches of policy warranties, negligence, omission, etc.)

(d) Property inspections. The Division will require adequate condition and valuation inspection of all property as the basis for

assessing the property's worth and suitability for guarantee. The Division may also require these at specified periods during guarantee life. These must be conducted by competent and impartial inspectors acceptable to the Division. Inspection cost will be at an applicant's expense. Those occurring before application approval may be included in actual cost.

(e) Guarantee terms and conditions. The Division's approval in principle letter shall specify the terms and conditions of the guarantor's willingness to guarantee. These shall be incorporated in closing documents that the Division prepares. Terms and conditions are at the Division's sole discretion. An applicant's nonacceptance will result in disqualification for guarantee.

(f) Noteholder. The Division will, as a gratuitous service, request parties interested in investing in guaranteed notes to submit offers to fund each prospective guaranteed note. The Division and the applicant will, by mutual consent, choose the responsive bidder, which ordinarily will be the prospective noteholder whose bid represents the lowest net effective annual cost of capital. Until the Division has closed the guarantee, arrangements between an applicant and a prospective noteholder are a matter of private contract between them, and the

Program is not responsible to either for nonperformance by the other.

(g) Closing--(1) Approval in principle letters. Every closing will be in strict accordance with a final approval in principle letter.

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(2) Contracts. The guaranteed note, U.S. note, and security documents will ordinarily be on standard Program forms that may not be altered without Divisional approval. The Division will ordinarily prepare all contracts, except certain pledges involving real property, which will be prepared by each notemaker's attorney at the direction and approval of the Division's attorney.

(3) Closing schedules. The Division will ordinarily close guarantee transactions with minimal services from applicants' attorneys, except where real property pledges or other matters appropriate for private counsel are involved. Real property services required from an applicant's attorney may include: Title search, mortgage and other document preparation, execution and recording, escrow and disbursement, and a legal opinion and other assurances. An applicant's attorney's expense, and that of any other private contractor required, is for applicant's account. Attorneys and other contractors must be satisfactory to the Division. The Division will attempt to meet

reasonable closing schedules, but will not be liable for adverse interest-rate fluctuations, loss of commitments, or other consequences of being unable to meet an applicant's and a prospective noteholder's closing schedule. These parties should work closely with the Division to ensure a closing schedule the Division can meet.

Sec. 253.16 Fees.

(a) Application fee. The Division will not accept an application without the application fee. Fifty percent of the application fee is fully earned at application acceptance, and is not refundable. The rest is fully earned when the Division issues an approval in principal letter, and it is refundable only if the Division declines an application or an applicant requests refund before the Division issues an approval in principal letter.

(b) Guarantee fee. Each guarantee fee will be due in advance and will be based on the guaranteed note's repayment provisions for the prospective year. The first annual guarantee fee is due at guarantee closing. Each subsequent one is due and payable on the guarantee closing's anniversary date. Each is fully earned when due, and shall not subsequently be refunded for any reason.

(c) Refinancing or assumption fee. This fee applies only to refinancing or assuming existing guaranteed notes. It is due upon application for refinancing or assuming a guaranteed note. It is fully earned when due and shall be nonrefundable. The Division may waive a refinancing or assumption fee's payment when the refinancing or assumption's primary purpose is to protect the U.S.

(d) Where payable. Fees are payable by check made payable to "NMFS/FSFF." Other than those collected at application or closing, fees are payable by mailing checks to: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, P.O. Box 73004, Chicago, Ill. 60673. To ensure proper crediting, each check must include the official case number the Division assigns to each guarantee.

Sec. 253.17 Demand and payment.

Every demand must be delivered in writing to the Division. Each must include the noteholder's certified record of the date and amount of each payment made on the guaranteed note and the manner of its application.

Should the Division not acknowledge receipt of a timely demand, the noteholder must possess evidence of the demand's timely delivery.

Sec. 253.18 Program operating guidelines.

The Division may issue Program operating guidelines, as the need arises, governing national Program policy and administrative issues not addressed by these rules.

Sec. 253.19 Default and liquidation.

Upon default of the security documents, the Division shall take such remedial action (including, where appropriate, liquidation) as it deems best able to protect the U.S.' interest.

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Subpart C--Interjurisdictional Fisheries

Sec. 253.20 Definitions.

The terms used in this subpart have the following meanings:

Act means the Interjurisdictional Fisheries Act of 1986, Public Law 99-659 (Title III).

Adopt means to implement an interstate fishery management plan by State action or regulation.

Commercial fishery failure means a serious disruption of a fishery resource affecting present or future productivity due to natural or

undetermined causes. It does not include either:

(1) The inability to harvest or sell raw fish or manufactured and processed fishery merchandise; or

(2) Compensation for economic loss suffered by any segment of the fishing industry as the result of a resource disaster.

Enforcement agreement means a written agreement, signed and dated, between a state agency and either the Secretary of the Interior or Secretary of Commerce, or both, to enforce Federal and state laws pertaining to the protection of interjurisdictional fishery resources.

Federal fishery management plan means a plan developed and approved under the Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.).

Fisheries management means all activities concerned with conservation, restoration, enhancement, or utilization of fisheries resources, including research, data collection and analysis, monitoring, assessment, information dissemination, regulation, and enforcement.

Fishery resource means finfish, mollusks, and crustaceans, and any form of marine or Great Lakes animal or plant life, including habitat, other than marine mammals and birds.

Interjurisdictional fishery resource means:

(1) A fishery resource for which a fishery occurs in waters under the jurisdiction of one or more states and the U.S. Exclusive Economic Zone; or

(2) A fishery resource for which an interstate or a Federal fishery management plan exists; or

(3) A fishery resource which migrates between the waters under the jurisdiction of two or more States bordering on the Great Lakes.

Interstate Commission means a commission or other administrative body established by an interstate compact.

Interstate compact means a compact that has been entered into by two or more states, established for purposes of conserving and managing fishery resources throughout their range, and consented to and approved by Congress.

Interstate Fisheries Research Program means research conducted by two or more state agencies under a formal interstate agreement.

Interstate fishery management plan means a plan for managing a fishery resource developed and adopted by the member states of an Interstate Marine Fisheries Commission, and contains information regarding the status of the fishery resource and fisheries, and recommends actions to be taken by the States to conserve and manage the fishery resource.

Landed means the first point of offloading fishery resources.

NMFS Regional Director means the Director of any one of the five National Marine Fisheries Service regions.

Project means an undertaking or a proposal for research in support of management of an interjurisdictional fishery resource or an interstate fishery management plan.

Research means work or investigative study, designed to acquire knowledge of fisheries resources and their habitat.

Secretary means the Secretary of Commerce or his/her designee.

State means each of the several states, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, or the Commonwealth of the Northern Mariana Islands.

State Agency means any department, agency, commission, or official of a state authorized under the laws of the State to regulate commercial fisheries or enforce laws relating to commercial fisheries.

Value means the monetary worth of fishery resources used in developing the apportionment formula, which is equal to the price paid at the first point of landing.

Volume means the weight of the fishery resource as landed, at the first point of landing.

Sec. 253.21 Apportionment.

(a) Apportionment formula. The amount of funds apportioned to each state is to be determined by the Secretary as the ratio which the equally weighted average of the volume and value of fishery resources harvested by domestic commercial fishermen and landed within such state during the 3 most recent calendar years for which data satisfactory to the Secretary are available bears to the total equally weighted average of the volume and value of all fishery resources harvested by domestic commercial fishermen and landed within all of the states during those calendar years.

(1) The equally weighted average value is determined by the following formula:

[GRAPHIC] [TIFF OMITTED] TR01MY96.004

[GRAPHIC] [TIFF OMITTED] TR01MY96.005

[GRAPHIC] [TIFF OMITTED] TR01MY96.006

(2) Upon appropriation of funds by Congress, the Secretary will take the following actions:

(i) Determine each state's share according to the apportionment formula.

(ii) Certify the funds to the respective NMFS Regional Director.

(iii) Instruct NMFS Regional Directors to promptly notify states of funds' availability.

(b) No state, under the apportionment formula in paragraph (a) of this section, that has a ratio of one-third of 1 percent or higher may receive an apportionment for any fiscal year that is less than 1 percent of the total amount of funds available for that fiscal year.

(c) If a State's ratio under the apportionment formula in paragraph

(b) of this section is less than one-third of 1 percent, that state may receive funding if the state:

(1) Is signatory to an interstate fishery compact;

(2) Has entered into an enforcement agreement with the Secretary and/or the Secretary of the Interior for a fishery that is managed under an interstate fishery management plan;

(3) Borders one or more of the Great Lakes;

(4) Has entered into an interstate cooperative fishery management agreement and has in effect an interstate fisheries management plan or an interstate fisheries research program; or

(5) Has adopted a Federal fishery management plan for an interjurisdictional fishery resource.

(d) Any state that has a ratio of less than one-third of 1 percent and meets any of the requirements set forth in paragraphs (c) (1) through (5) of this section may receive an apportionment for any fiscal year that is not less than 0.5 percent of the total amount of funds available for apportionment for such fiscal year.

(e) No state may receive an apportionment under this section for any fiscal year that is more than 6 percent of the total amount of funds available for apportionment for such fiscal year.

(f) Unused apportionments. Any part of an apportionment for any fiscal year to any state:

(1) That is not obligated during that year;

(2) With respect to which the state notifies the Secretary that it does not wish to receive that part; or

(3) That is returned to the Secretary by the state, may not be considered to be appropriated to that state and must be added to such funds as are appropriated for the next fiscal year. Any notification or return of funds by a state referred to in this section is irrevocable.

Sec. 253.22 State projects.

(a) General--(1) Designation of state agency. The Governor of each state shall notify the Secretary of which agency of the state government is authorized under its laws to regulate commercial fisheries and is, therefore, designated receive financial assistance awards. An official of such agency shall certify which official(s) is authorized

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in accordance with state law to commit the state to participation under the Act, to sign project documents, and to receive payments.

(2) States that choose to submit proposals in any fiscal year must so notify the NMFS Regional Director before the end of the third quarter of that fiscal year.

(3) Any state may, through its state agency, submit to the NMFS Regional Director a completed NOAA Grants and Cooperative Agreement Application Package with its proposal for a project, which may be multiyear. Proposals must describe the full scope of work, specifications, and cost estimates for such project.

(4) States may submit a proposal for a project through, and request payment to be made to, an Interstate Fisheries Commission. Any payment so made shall be charged against the apportionment of the appropriate

state(s). Submitting a project through one of the Commissions does not remove the matching funds requirement for any state, as provided in paragraph (c) of this section.

(b) Evaluation of projects. The Secretary, before approving any proposal for a project, will evaluate the proposal as to its applicability, in accordance with 16 U.S.C. 4104(a)(2).

(c) State matching requirements. The Federal share of the costs of any project conducted under this subpart, including a project submitted through an Interstate Commission, cannot exceed 75 percent of the total estimated cost of the project, unless:

(1) The state has adopted an interstate fishery management plan for the fishery resource to which the project applies; or

(2) The state has adopted fishery regulations that the Secretary has determined are consistent with any Federal fishery management plan for the species to which the project applies, in which case the Federal share cannot exceed 90 percent of the total estimated cost of the project.

(d) Financial assistance award. If the Secretary approves or disapproves a proposal for a project, he or she will promptly give written notification, including, if disapproved, a detailed explanation

of the reason(s) for the disapproval.

(e) Restrictions. (1) The total cost of all items included for engineering, planning, inspection, and unforeseen contingencies in connection with any works to be constructed as part of such a proposed project shall not exceed 10 percent of the total cost of such works, and shall be paid by the state as a part of its contribution to the total cost of the project.

(2) The expenditure of funds under this subpart may be applied only to projects for which a proposal has been evaluated under paragraph (b) of this section and approved by the Secretary, except that up to \$25,000 each fiscal year may be awarded to a state out of the state's regular apportionment to carry out an "enforcement agreement." An enforcement agreement does not require state matching funds.

(f) Prosecution of work. All work must be performed in accordance with applicable state laws or regulations, except when such laws or regulations are in conflict with Federal laws or regulations such that the Federal law or regulation prevails.

Sec. 253.23 Other funds.

(a) Funds for disaster assistance. (1) The Secretary shall retain sole authority in distributing any disaster assistance funds made

available under section 308(b) of the Act. The Secretary may distribute these funds after he or she has made a thorough evaluation of the scientific information submitted, and has determined that a commercial fishery failure of a fishery resource arising from natural or undetermined causes has occurred. Funds may only be used to restore the resource affected by the disaster, and only by existing methods and technology. Any fishery resource used in computing the states' amount under the apportionment formula in Sec. 253.21(a) will qualify for funding under this section. The Federal share of the cost of any activity conducted under the disaster provision of the Act shall be limited to 75 percent of the total cost.

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(2) In addition, pursuant to section 308(d) of the Act, the Secretary is authorized to award grants to persons engaged in commercial fisheries, for uninsured losses determined by the Secretary to have been suffered as a direct result of a fishery resource disaster. Funds may be distributed by the Secretary only after notice and opportunity for public comment of the appropriate limitations, terms, and conditions for awarding assistance under this section. Assistance provided under this

section is limited to 75 percent of an uninsured loss to the extent that such losses have not been compensated by other Federal or State programs.

(b) Funds for interstate commissions. Funds authorized to support the efforts of the three chartered Interstate Marine Fisheries Commissions to develop and maintain interstate fishery management plans for interjurisdictional fisheries will be divided equally among the Commissions.

Sec. 253.24 Administrative requirements.

Federal assistance awards made as a result of this Act are subject to all Federal laws, Executive Orders, Office of Management and Budget Circulars as incorporated by the award; Department of Commerce and NOAA regulations; policies and procedures applicable to Federal financial assistance awards; and terms and conditions of the awards.

II. Synthesis of Findings from The Community Studies: A Comparative Analysis

A. Dimensions of the Problem

B. The Magnuson Act and the Management Council

C. Purpose and Objectives of the Study

D. Background and Methodological Considerations

E. Definition of Community

F. Demographic Issues (Tables 1, 2, & 3)

G. Dependence on the Multispecies Groundfish Fishery (Tables 4 & 5)

H. Social and Cultural Parameters of the MGF (Figures 2, 3, 4, & 5)

A. Dimensions of the Problem

New England and Mid-Atlantic fishing communities, particularly those dependent upon the Multispecies Groundfish Fishery (MGF), are experiencing severe social and economic uncertainty--both real and perceived--from recent regulatory changes and legal challenges to their way of life. Declines in groundfish stocks, Amendments # 5 and # 7 to the Multispecies Groundfish Fishery Management Plan, Marine Mammal Protection legislation (the MMPA), coastal access conflicts, threats and promises of limited entry, licensing moratoria, season closures, net bans, the extension of current quotas and the development of Individual Transferable Quotas (ITQs)--have created an environment where fishers incorporate *anticipated* regulations into their fishing and survival strategies.

What gears to use, which species to target, where to fish, and how to pioneer new and maintain old markets for their catch no longer depend primarily on fishers' ethnobiological understandings of fish and ecological cycles nor their economic calculations. Now fishers modify their interactions with the marine environment based not only on the availability and robustness of fish stocks but on their understandings and evaluations of the political process (including its legitimacy), state and federal enforcement capabilities, and past experiences with federal and state interventions in their fishing styles. What they perceive was once a largely solitary existence, dependent on seasonally

variable, daily interactions with the sea has become a legal tangle that forces them, their family members, and other members of their social support networks into uneasy organizations and coalitions that engage the state in seemingly ever more hostile discourse.

This crisis of uncertainty and anticipation is neither restricted to the ports of Massachusetts, Maine, or other parts of the New England and Mid-Atlantic regions, but constitutes a complex of social, cultural, and ecological problems facing commercial fishing as an industry and as a way of life that is central to the identities of coastal families, neighborhoods, and communities. The deep investments that fishing families make in cultural capital--or those symbolic elements of their ways of life that lend identity and meaning to their actions, facilitating well-being and productive membership in the nation and their communities--have been chronicled in articles, essays, and popular and academic books for several decades (e.g., Acheson 1987; Garrity-Blake 1994; Dyer and McGoodwin, eds. 1994). These investments are encouraged, realized, and facilitated by extensive networks and social relationships that link fishing families to seafood dealers and processors, marine suppliers, harbor masters, government agencies and enforcement personnel, and a variety of service providers within the financial, insurance, and real estate (F.I.R.E) sectors of the U.S. economy.

Families that depend on fishing and the seafood industry along the eastern seaboard of the United States are economically, socially and psychologically stressed because of declining fish stocks, increased state and federal government regulation, coastal development and gentrification, and conflicts between different populations of fishers. During 1995, for example, gill nets were banned in Florida waters and moratoria on licenses were put into effect in North Carolina and for fishers in the multispecies groundfish fishery of the Northeast and Mid-Atlantic regions (from the Gulf of Maine to Cape Hatteras). Several other states have been experimenting with new fishing licensing systems, limited entry or other kinds of reduced access programs, and various closures of fishing regions for environmental or biological reasons (e.g., designated nursery areas). Even as ground fishers witness fishing stocks dwindling and habitats continuing to shrink or become polluted, fishing interests in other states and other countries are considering or putting into place measures to restrict access to fisheries which displaced ground fishers might enter.

Fishing families have responded to these changes in a variety of ways, including experimenting with other fishing methods and gears, taking alternative positions in other fishing enterprises (e.g., moving from captaining their own vessels to working as crew on others), leaving fisheries for shore-based jobs, establishing aquaculture operations, or moving to other states with more relaxed regulations. Attempts to maintain the fishing lifestyle often involve taking part-time or full-time jobs, within fishing and fishing related fields (at marinas or dry dock facilities) as well as in the various segments of the labor market that are not related to fishing. Family members' contributions to these efforts are often substantial, with working wives, mothers, daughters, and sons providing expenses during seasonal or occasional downturns in fishing or fish marketing activity.

This occurs at a time that labor market opportunities in construction, manufacturing and other economic sectors where fishers and their family members are likely to find employment have been

constricting, and jobs in unskilled sectors of the economy are increasingly staffed by temporary, casual, and immigrant workers who keep wages at minimum levels. In addition, developments in the industrial sector that fishers have supplied for generations--food and kindred products--threaten to confine those at all levels of food procuring and producing to low levels in company hierarchies. Recent economic developments along these lines include the expansion of Tyson, ConAgra, RJR Nabisco, Phillip Morris, and other food and tobacco companies into fish processing, building on the vertical integration/ contract production models of poultry and, more recently, hog processing (Griffith 1993; Stull, Broadway, and Griffith 1995).

Under these systems, direct producers become little more than caretakers of ponds, herds, flocks, or fields, hired or contracted for specific tasks, and have little stake themselves in the fish, plants and animals they tend. Similar contract fishing arrangements would likely emerge under the large food companies, with more and more vessels staffed by hired captains and crew with less long-term, enduring interest in the health of the resource than independent, owner-operator fishers who hope to leave the resource and their fishing operations to their children. Fishers we interviewed for this study, particularly those fishing from small- to medium-sized vessels (i.e., vessel measuring between 30' and 75'), fear that Individual Transferable Quotas (ITQs) will speed this process by reducing the quotas available to many fishers to levels below which they cannot survive, forcing them to sell their quotas to larger corporate interests.

Also, fishers typically see independence as a key defining feature of their identity; thus they submit with extreme difficulty to the close supervision associated with many jobs and with contract production or contract fishing, where a regimen is established around production quotas or input conversion ratios. They are used to "share" rather than "wage payment" systems, which they view as incentive systems that join labor (crew) and management (captains/ vessel owners) in common desires to maintain high productivity per unit of time and investment of capital. Similarly, fishers' work schedules--erratic and dictated by weather and the habits of fish, affecting the schedules of other members of their households--do not translate into time-clock regimens of factories, offices, and other jobs.

Wives and children of fishers interviewed during this study described how they had accommodated their own schedules to absent husbands and fathers and expressed some trepidation over the prospect of the fishers staying at home for long periods of time. When fishers are forced into the labor market, their status as small businessmen predisposes them to finding informal, casual jobs when they need to, rather than investing time in career-oriented training, or to operating other independently owned and operated businesses, always looking to return to fishing on a part-time or full-time basis.

These considerations become important as we consider the notion of the dependence of fishers, their families, and the wider communities in which they live on the MGF. With the exception of New Bedford, it is difficult to argue that groundfishing occupies the economic heart of any of the communities profiled in this study, or that each community could not weather or absorb its demise with alternative economic development initiatives. Nevertheless, placing the demise of

groundfishing in the broader context of material and symbolic linkages with one of our nation's most important natural resources--historically and today--allows us to define dependence at once more loosely and more comprehensively. The loss of stores of human, social, and cultural capital that currently cement those directly involved in groundfishing with those less and less directly involved--from ice suppliers to insurance executives--will constitute a reduction in social and economic diversity that is no less a threat to the well-being of these communities than the loss of biological diversity is to the marine ecosystem. We elaborate on these issues further in the sections that follow. First, we present a brief overview of the Magnuson Act and the regional council system as they are related to the study.

B. The Magnuson Act and the Management Council

The Magnuson Fisheries and Conservation Act was signed into law to protect the marine resources and fishing communities of the United States. It established the 200 mile Exclusive Economic Zone (EEZ) for territorial* U.S. waters and a regional management council system to regulate fisheries in the federal zone. The initial concerns of the Act were to eliminate foreign competition and maximize productivity of the American fishing industry. As fisheries have become stressed, there has been a shift towards conservation of resources. Along with the Act came the creation of a bureaucracy through the council system to manage the EEZ and fishery dependent communities linked to the resource. The fishing community-fishery dynamic was not considered a priority for managers in the early years of Magnuson, and until recently little attention was paid to the social impacts of regulations.

* Note by Clay: "Territorial" waters in the legal sense extend only to 12 miles. In the EEZ control is over the resources, not the territory.

The Magnuson Act established eight regional fisheries management councils. The New England Fisheries Management Council (NEFMC) has jurisdiction over federal waters (from 3 to 200 miles) in New England. The NEFMC develops management plans and the National Marine Fisheries Service writes the regulations to implement the plans. Both are administered by the National Oceanic and Space Administration (NOAA) under the Department of Commerce.

The NEFMC consists of 15 members, who are appointed to indefinite terms and are chosen to represent stakeholders in the fisheries, including various regions, scientific and conservation interests, and gear and vessel types. Committees develop management plans and address critical issues for fisheries under the jurisdiction of the council. For example, there are committees on scallops, gear conflict, herring, aquaculture, and lobsters.

Each committee has a Plan Development Team (PDT) which liaises with NMFS biologists, economists and others at Woods Hole to develop the suggestions of committee members into plans which are reported to the full council. Agendas for the development of plans are highly varied

depending on what are deemed critical issues, as well as the interests and priorities of particular council members. Once the council has completed development of a management plan, it is submitted to the National Marine Fisheries Service/NOAA for review. Important criteria which go into the review process include statistical analysis of the population dynamics of utilized fish stocks and estimated catch effort on stocks. Historically, little social and economic data have been factored into regulation development, even though their consideration is mandated by the Magnuson Act.

If NMFS deems a management plan acceptable based on the best available biological, economic, and social information, regulations will be written by NMFS staff to implement the plan. Proposed regulatory actions are published in the *Federal Register*, followed by a period of public commentary. It is historically rare for public commentary to significantly alter the final form of any proposed regulation, a factor which has promoted widespread cynicism among fishers about the regulatory process. After the commentary period, the Secretary of Commerce signs the regulation into law. The Secretary also has the power to veto any proposed regulations. The Magnuson Act prohibits court injunction against fishery regulations developed through the Council system. It is the only law with an injunctive prohibition in the history of American jurisprudence. The stages under the council system through which a management plan is considered and matching regulations developed are detailed in Dyer (1994).

Because the southern range of the MGF extends across the Hudson River bight and the Chesapeake Bay to Cape Hatteras, North Carolina, the Mid-Atlantic Fishery Management Council (MAFMC) also has an interest in the development of groundfish regulations, particularly flounders and other flatfishes, but relies extensively on the New England Council for recommendations.

Communication between the two councils takes place primarily through the MAFMC's New England Liaison person, currently residing in Wakefield, Rhode Island. Twelve private citizen appointees make up the MAFMC's voting members, who come from New York (2), New Jersey (3), Delaware (2), Maryland (2), Virginia (2), and Pennsylvania (1). In addition, six public official members and their designees, representing state marine and fishery management agencies, vote on matters before the council. Day-to-day operation of the council is accomplished by ten staff persons, including an executive director, executive secretary, administrative officer, senior ecologist, senior fishery management specialist, two fishery management specialists (a biologist and an economist), an economic information systems manager, an administrative secretary, and a secretary/word processor.

The Magnuson Act has gone through reauthorization four times since its inception in 1976.* Presently, it is up for reauthorization in Congress. Over time, the initial objective to limit impacts of foreign fishing activities in US waters has shifted towards the conservation of "overfished" stocks within the EEZ, and towards conservation of habitat (embracing an ecosystem approach to management).

* Note by Clay: The Act was re-authorized as the Magnuson-Stevens Fishery Conservation and Management Act in the fall of 1996.

A proposed modification* in recent reauthorization hearings relevant to this report is found under

Title I; Conservation and Management: Section 107 of S.39, and Section 7(8). The modification is to National Fishery Conservation and Management Standards. Part of the proposed modification is to require:

"minimization of adverse economic impacts on fishing communities."

*Note by Clay: For full current text of these two provisions return to NEFSC homepage, choose "Information" and then Magnuson-Stevens Act. Go to Sec. 301(8).

Under Section 7(8) is a related provision that clearly extends the responsibility of management to consider the sustainability of fishing communities;

"Conservation and management measures shall take into account the importance of the harvests of fishery resources to fishery dependent communities" (S.39, sec. 109).

This provision can be seen as a needed safeguard mechanism to ensure the survival of these communities if allocation rights are deemed necessary. Amendment #7 clearly has an impact on the allocation of fisheries resources by limitations on days at sea. Community dependence on the fishery, as determined in this report, can be utilized in making decisions on the impacts of Amendment #7 and in planning management policy consistent with the community language of the Magnuson Act.

Under the dictates of Magnuson, the ability of managers to consider the community impacts of fishery regulations must be guided by 'best available' social and economic data. This report provides such baseline data, assessing fishery dependence and pointing to areas where further research is necessary. This report *cannot* be used to measure the magnitude and direction of social and economic impacts of specific regulations, but rather provides focus on critical issues that can only be comprehensively addressed through a Social Impact Assessment (SIA). An SIA informed by our dependency model and identified critical issues should fulfill the requirements of Magnuson while allowing managers and communities to work cooperatively towards mitigating the harmful impacts of needed fishery regulations.

C. Purpose and Objectives of the Study

Until the autumn of 1995, fishers in New England and the Mid-Atlantic states believed that the implementation of a moratorium on new entrants to the Multispecies Groundfish Fishery (MGF) and a reduction of the number of fishing days by 50% over a five year period--along with other regulatory changes known collectively as Amendment #5--would have devastating social and cultural impacts on fishers, fishing families, those in fishing-related occupations, and others in

fishing communities over a broad geographical range. Late in 1995, however, while grudgingly adjusting to the new regulatory environment, fishers learned of the new and even more restrictive regulations of Amendment # 7, regulations designed to conserve stressed groundfishing stocks (especially the signature species of Atlantic Cod, *Gadus morhua*). News of the pending regulations sent a mixture of alarm, malaise, betrayal, and anger through fishing communities from Maine to New Jersey and even as far south as Cape Hatteras. Against the background of this emotional and legal turmoil, we entered several major and minor groundfishing communities of New England and the Mid-Atlantic to accomplish the following objectives:

1. Ascertain community-dependence on the MGF and the nature and scope of social impacts of the MGF management measures on fishers, others working in fishery-related employment, and their communities;
2. Provide information on the demographics and numbers of fishers, fishing craft, and persons involved in fishery-related industries, by community, county, and state;
3. Identify social science data bases and describe social issues which should be used or considered in any follow-up (Phase 2) to this study of social impacts of fishery management in the New England and Mid-Atlantic areas of the United States; and
4. Develop a classification system that will aid in predicting the social impacts of changing fishery regulations on fishery dependent communities.

This report provides detailed information on the major MGF communities of New Bedford/Fairhaven, Gloucester, and Chatham, Massachusetts; Portland, Maine; and Point Judith, Rhode Island. In addition, we provide less detailed information on several smaller ports in Maine, New York, New Jersey, Maryland, Virginia, and North Carolina. These include:

1. Stonington and the "Down East" Ports of Maine (e.g., Machiasport, Jonesport, Winter Harbor)
2. Portsmouth, New Hampshire

3. Provincetown, Massachusetts

4. Newport, Rhode Island

5. Montauk, New York

6. Cape May, New Jersey

7. Ocean City, Maryland

8. Tidewater Region, Virginia (including Hampton Roads and Newport News)

9. Wanchese, North Carolina

[Go to map of ports](#)

Information presented in this report on the secondary ports varies fairly widely based on the importance of groundfishing in the ports and the extent of time we were able to spend in these ports.

Together, the community information provides a basis for classifying communities based on their dependence on the MGF, as suggested by five predictive variables to emerge from the study. This will enable both fishers and regulators to prepare more effectively for future real and perceptual crises in the MGF and related fisheries.

D. Background and Methodological Considerations

Prior to the current study, with a few exceptions buried in local repositories, information on the social and cultural dimensions of the MGF has been dated, anecdotal and incomplete, giving fishery managers little basis from which to estimate how the impacts of the new regulations vary by community, by sector of the fishery, or by other social and cultural phenomena. Through the systematic collection of data on the social and cultural dimensions of the MGF, in this report we develop a classification system that will enable fishery managers to predict the probable consequences of current and future regulations.

D1. Research Tasks

To develop this classification system and achieve the other objectives listed above, working in an environment as socially and culturally diverse as the New England and Mid-Atlantic MGF, we have drawn on a combination of traditional ethnographic work and more systematic data collection techniques. These include the Rapid Appraisal (RA) techniques and Rapid Ethnographic Assessment Procedures (REAP) of cultural mapping, in-depth interviewing, and holding focus groups; we supplement these with limited survey research and the techniques of cognitive anthropology known as pile-sorting tasks and multidimensional scaling. A drawback of any RA technique is the difficulty in getting consistency of data across communities, particularly when dealing with communities under stress that vary widely in their ethnicity and history. Establishing rapport takes longer in some communities than others, and can also affect the quality and depth of field data. For example, rapport was quickly established in Gloucester with the cooperation of a local fishing organization, the Gloucester Fishermen's Wives Association (GFWA)*. The cooperation and assistance of this organization made possible the gathering of fine grained ethnographic information in Gloucester on critical issues such as breakdown of social networks and economic problems in the fishery. Such information was not as readily accessible in other ports such as New Bedford. Thus, under the limitations of RA methodology particular issues highlighted in one community study may not be addressed in another. This is reflected in the variation in section headings for the community studies.

*Note by Clay: For more information on GFWA see <http://www.gfwa.org/~gfwa/index.html>

Understanding MGF participants' perceptions is crucial to implementing management plans, being particularly useful in designing educational and outreach programs or marine advisory efforts to prepare MGF participants for regulations, advise them about alternative economic strategies, and otherwise reduce the deleterious effects of management measures. Because the success of regulations depends, in part, on high degrees of voluntary compliance, understanding the perceptions of individuals involved in the fisheries is necessary to convince these individuals to comply.

D2. Community Selection Procedures

To assure the collection of representative information, our strategy for selecting the study communities combined state and federal licensing data with repeated visits to coastal communities between Maine and Cape Hatteras. We found the licensing data, for the most part, far less helpful than the community visits, with some ports listed as important in terms of vessel tonnage and numbers of groundfishing permits actually being home to few or no groundfishers. Nevertheless, we utilized licensing data to guide our initial regional tours, which resulted in narrowing the number of communities in which groundfishing remains an important primary or secondary fishery. Key informants, such as state enforcement personnel, NMFS port agents, and local fishers and active members of fishing associations, assisted in selecting the MGF communities discussed here.

E. Definition of Community

In a recent collection of case studies of folk management in fisheries around the world, Dyer and McGoodwin (1994) draw upon the concept of the Natural Resource Community (NRC) as a social unit anchored in local history and local understandings of ecological relationships, consisting of "a population of individuals living within a bounded area whose primary cultural existence is based on the utilization of renewable natural resources" (Dyer, Gill, and Picou 1992, cited in Dyer and McGoodwin 1994: 5). According to them, "...a localized worldview, and locally developed assertions about how to best manage fisheries, still arise among fishing peoples at every level of technological sophistication" (*ibid.*). Although fishers interact, often quite regularly, with individuals and institutions who have few or no ties to fishing, "where they [fishers] live and work is still a localized, specific place, and quite often they perceive that they take their catches from a specific, bounded, marine ecosystem, which from their perspective has unique systemic attributes" (*ibid.*).

The fishing segments of the primary and secondary ports identified above can be considered Natural Resource Communities (NRCs) in so far as they include significant populations of individuals who depend directly on a renewable natural resource, but they depart from the definition of NRCs in important ways. None of the fishing NRCs we have selected for study are in any sense "bounded," set apart from the commerce and institutional apparatus of the cities and towns in which they are located; nor do fishers in these communities seem to perceive the ecosystems upon which they depend as closed systems. On the contrary, similar to the findings of others (e.g., Griffith 1996; Durrenberger 1996; Dyer and McGoodwin 1994), most fishers we interviewed for this study viewed marine ecosystems as dynamic and complex, affected by global weather conditions and shore-based human activities. Fishers and their families are particularly concerned about industrial pollutants and coastal real estate development that results in the destruction of wetlands and other marine habitats. Nevertheless, those individuals who comprise the NRCs we have selected--fishing communities within larger, more complex communities--do conform to the NRC model in the depth of their dependence on a renewable natural resource and in the extent to which they are rooted in local history and local traditions, deriving social and cultural identity from a sense of place whose life rhythms rise and fall with populations of fish, seasonal conditions at sea, and the increasingly complex regulatory environment entangling their traditions.

We can consider the NRC of each port as a regional contributor to whatever commerce is stimulated by fishing in general and groundfishing in particular, and as a means of providing sustainable support to fisher families as they contribute a high-quality food product to the region and nation. While only the fishers themselves interact with marine resources, they are nevertheless embedded in wider communities and towns, contributing to the food security of those communities and towns and buffering coastal development in a way that contributes to social and economic diversity. In the section that follows, we present some limited information on the numbers of

individuals and firms within the target study communities that benefit directly from the fishing lifestyle.

F. Demographic Issues

As noted earlier, we selected our primary and secondary ports based on available licensing data combined with brief site visits, phone calls to individuals in the areas, and conversations with fishers and others familiar with the MGF. In general, we found that highly specialized groundfishing has become more concentrated in recent years, confined primarily to the three primary ports of New Bedford, Gloucester, and Portland. In addition, we found that groundfishing remains an important part of fishers' annual rounds in the primary ports of Chatham and Point Judith and among small groups of fishers in Stonington, Maine, the Tidewater region of Virginia, and Wanchese, North Carolina. In most of the other ports, however, other fisheries--particularly shellfish (lobster, scallops, clams, blue crab, shrimp)--have either become recently or have for some time been more important than groundfish. Maine ports outside Portland, for example, have become more dependent on eels and sea urchins in recent years than groundfish.

Many fishers throughout New England and the Mid-Atlantic states have moved into the burgeoning dogfish fishery, as well as expanding their stakes in the traditional shellfish and squid fisheries. Fishers and state regulators familiar with or dependent on these alternative fisheries fear that fishers currently being displaced by groundfishing will move into these fisheries, causing crowding and overfishing problems similar to those that are occurring in groundfishing today.

Early in our research we discovered discrepancies between vessel license data and the numbers of active groundfishers reported during visits to the ports. For example, the first three to four days of field work in the Down East region of Maine revealed that ports such as Machiasport and Jonesport had one or two gillnetters who still fished for groundfish, yet licensing data indicated that Machiasport had 9 permits and Jonesport had 12. The small populations of these ports, moreover, resulted in high per capita numbers of permits, leading us to believe these ports were highly dependent on groundfishing. Field visits proved this not to be the case. Montauk, with 76 active MGF permits and only 24 working groundfish draggers, represents the largest disparity between permits and working vessels. Many MGF permits are held by captains of recreational day boats, some of whom used to fish commercially but now utilize their permits as an option on trips targeted for popular game fish such as tuna.

Table 1: Number of NMFS MGF Permits vs. Estimated Operational Vessels Capable of Groundfishing

Primary Ports	Permits	Working Vessels
Gloucester	219	200
New Bedford	129	241
Chatham	114	65
Portland	62	80
Point Judith	78	55
Secondary Ports		
Provincetown	26	17
Montauk	76	24
Newport	16	20
Stonington	10	6
Portsmouth	24	n.d.
Ocean City	4	n.d.
Wanchese	12	7
Hampton Roads/Newport	9	n.d.
Cape May	38	33

Table 2: Primary and Secondary Port Infrastructure Related to Commercial Fisheries

City of Primary Ports	Population (1990)	Suppliers/ Equipment	Dealers/ Processors
New Bedford, MA	175,641	35	77
Gloucester, MA	28,716	12	43
Portland, ME	243,135	21	42
Chatham, MA	6,579	15	29
Point Judith, RI	3,721	11	32
City of Secondary Ports			
Down East, ME	500-1,500/own	19	11
Portsmouth, NH	28,227	14	9
Provincetown	3,953	2	3
Newport, RI	5,145	15	9
Montauk, NY	3,001	n.d.	3
Cape May, NJ	4,668	23	13
Ocean City, MD	5,145	15	9
Tidewater, VA	1,396,107	67	27
Wanchese, NC	1,380	16	8
Total	n.a.	263	312

Notes: Information based primarily on telephone directories, maps, and field visits; New Bedford, Portland, and Tidewater population figures based on the SMSAs (Tidewater region includes Hampton Roads, Newport News, and Norfolk metropolitan areas); figures for the Down East region of Maine come primarily from the Ellsworth telephone directory, supplemented by field visits.

Table 1*, then, compares federal licensing data with some information on the numbers of active groundfishers per port.

*Note by Clay: Numbers of permits are for vessels which claimed a particular port to be their home port. Some of those who hold a permit do not actively fish it. In addition, some discrepancies are to be expected due to other factors, e.g., "New Bedford" does not include Fairhaven, a vessel may change its home port during the year in response to fishery conditions.

Demographic information about the communities and some of the support infrastructure reflect their dependence on fisheries (Table 2). We supplemented this information with brief telephone surveys in the three principal groundfishing ports of New Bedford, Gloucester, and Portland, finding groundfishing to indeed occupy a core part of their fishing industry, accounting for between 44 and 53% of their seafood dealing and processing capacity and significant employment (Table 3).

Figures from both of the above tables allow us to derive rough estimates of shoreside employment

from handling seafood (icing, shipping, and processing) that derives directly from the local MGF. We accomplish this by multiplying average numbers of employees by number of plants by the percentage of business derived from local groundfish.

Table 3: Indicators of Dependence on Local Groundfish in the Seafood Handling Sectors of Three Primary MGF Ports

Port	Average % of Business from Local MGF	Average Employment Per Plant/Total	Brokers	Unions
New Bedford	52.27	27	2	2
Gloucester	44	15	5	1

These figures, of course, refer only to those who handle the catch, excluding those who participate in other shoreside industries such as ice plants, fuel barges, marine railways, marine suppliers, welders and repair operations, and so forth. We discuss these in the following section.

$$\begin{aligned}
 \text{New Bedford: } & (27 \times 77) \times .5227 = 1,086 \\
 \text{Gloucester: } & (15 \times 43) \times .44 = 284 \\
 \text{Portland: } & (25 \times 42) \times .48 = 504 \\
 \text{Total} & = \mathbf{1,874}
 \end{aligned}$$

G. Dependence on the Multispecies Groundfish Fishery: Developing a Community Classification System

G1. Assessing Community Dependence on the Multispecies Groundfish Fishery

Understanding community dependence on the MGF requires identifying critical indicators of dependence, assigning them values based on our qualitative data, and comparing them across the study communities. The sum of the values then gives us a rough index of dependence by community.

Since each community is a product of a *unique* environmental history and political ecology, assigned dependency categories must be understood in the context described in each case study. It is clear from the variability seen across communities that changing regulatory or fishery stock conditions will result in community-specific impacts and adaptive responses. Identifying similarities and differences across communities reveals critical social issues that can constitute the

basis of a follow-up (Phase II study) Social Impact Assessment (SIA).

The dependency index presented in Table 4 is based on the combination of specific physical-cultural indicators of dependence and general social-geographic indicators isolated across the range of target communities. The data we include in the index are derived from a combination of qualitative interviews, field work observation and quantitative analysis from secondary data sources. They are not meant to represent the total range of possible physical-cultural factors, but instead represent key factors we encountered in our studies of the five primary MGF communities.

Table 4 shows the fishery dependency scores for the five primary ports. Factors are scored in two ways: nominally (as either present or absent), and ordinally (ranked from 5-highest, to 1-lowest). For example, if a port has 7 suppliers processors, and this is the largest number of the five, it is given a ranking of 5. Normative rankings of a cultural feature, such as secular symbolism celebrating fishing (e.g., a public plaque on a dock) is given a score of 1 (present) or 0 (absent). Thus, higher scores indicate more dependence.

Port	Portland	Gloucester	Chatham	New Bedford	Point Judith
Repair/supply facilities	21 (4)	12 (2)	15 (3)	35 (5)	11 (1)
Fish dealers/processors	42 (3)	43 (4)	29 (1)	77 (5)	32 (2)
Religious art/architecture dedicated to fishing	(0)	(1)	(0)	(1)	(1)
Secular art/architecture dedicated to fishing	(1)	(1)	(1)	(1)	(1)
Number of MGF permits	60 (1)	219 (5)	110 (3)	128 (4)	78 (2)
Number of MGF vessels	80 (2)	322 (5)	84 (3)	241 (4)	55 (1)
Fishing Dependency Index Score	11	17	11	21	7

Based on the Fishery Dependence Index (FDI), New Bedford is the most dependent on the MGF, Gloucester second, followed by Chatham and Portland of equal dependence and Point Judith the least dependent. Thus, the large scale communities are more dependent on the MGF than Portland, Chatham, and Point Judith. Among the smaller ports, Stonington is more dependent on fishing in general than Hampton Roads/Newport News, or Montauk.

Point Judith and Chatham are intermediate in size, but Point Judith is the least dependent because of its flexibility in utilizing a wide range of fish stocks and gear types. They differ in aspects of adaptability and geography from New Bedford and Gloucester. For example, the configuration of the Chatham port restricts the size of fishing vessels to the small-medium range. Point Judith can handle larger vessels, but the limited dock space, short history, distance from fishing offshore grounds, depletion of inshore groundfish stocks, and emphasis on diversification make it less a presence in the offshore MGF than either Gloucester or New Bedford.

Despite the number of MGF permits held in Point Judith (78), the concentration of the fleet is on offshore midwater species, and with the short history of the fishery and an approach to fishing that does not depend on extensive kinship or village networks, the fishery is more adaptive than Gloucester or New Bedford. New Bedford has a greater capital investment by scale than Gloucester, and repair and service capacity for vessels. Features of Gloucester that make it more dependent than Portland include: linguistic and work-organizational boundaries to change, high investment in offshore dragging with large crews and parallel large family networks dependent on the fishery.

The Fishery Dependence Index (FDI) does not include details of social and geographic factors in its determination, yet the results are supported by the social and geographic characteristics of each port. Furthermore, it complements and is consistent with the fine-gained ethnographic details and identified critical issues presented in the case studies of each primary port. These variables provide the means to operationalize the concept of dependence by creating an index that includes qualitative and quantitative data about variables that differentiate between ports in terms of: (a) the city's or town's dependence on the fishing industry, and by extension on the MGF; and (b) the NRC's dependence on the MGF to the exclusion of other fisheries or other economic activities.

An index of this nature, however, remains a crude estimate of dependence, partially because of the difference between *fishers'* dependence on the MGF or *community* dependence on the MGF. Comparing the community studies, we find that while the city of New Bedford is most dependent on their fishery for overall community health, the fishers of Gloucester are more heavily dependent on the MGF than the fishers of New Bedford. This is primarily due to New Bedford's Portuguese community and the opportunities it provides for dealing with the crisis in groundfishing by moving back to Portugal. Observations of this nature suggest, and our studies confirm, that neither New Bedford nor Gloucester would weather a prolonged crisis in groundfishing without widespread suffering.

G2. Assessment of Variations Between Ports

Comparing the information from the principal communities allows us to develop a rough ranking of communities in terms of their dependence on the Multispecies Groundfish Fishery. In combination with the FDI information presented above, it appears that fishers in New Bedford and Gloucester are more dependent on the MGF than fishers in Portland, Chatham, and Point Judith; by the same token, Stonington, ME and Wanchese, NC are more dependent on fishing in general, if not the MGF in particular, than the other secondary ports. In both cases, among a segment of the fishing families in these communities, the MGF is important as providing both core and secondary target species within a flexible fishing strategy that, through the course of a year, might combine three to four gears and target three to four species.

Fleets in some of the secondary ports have either become relatively marginalized or have managed to integrate themselves into the tourist and leisure uses of the coast to such a degree that they would be difficult to dislodge at this historical juncture. In Cape May, NJ, for example, the fisherman's wharf extends from a cluster of tourist shops and restaurants to a retail seafood market to a series of processing houses as malodorous and cluttered as the busiest seafood houses of New Bedford; in this case, as in Chatham, the fishing industry is an integral component of what attracts the tourists, who dine on fresh fish only yards from where the vessels off-load and ice-down their catches.

While some differences in dependence are due to one port's economic complexity relative to another's, with some ports experiencing more and more diverse job growth than others, we would have trouble arguing that there is an inverse relationship between economic complexity and dependence on the MGF. Portland and New Bedford are roughly equally economically complex, both struggling with constricting manufacturing sectors and attempting to enter the 21st century via trends in globalization, international commerce, and developing professional services, yet Portland's economy as a whole is less dependent on its commercial fishing sector than New Bedford's. By the same token, the character of job growth in Gloucester, Chatham, and Point Judith is similar--all three cities attempting to enhance their images as tourist destinations and artists' colonies, with even some of the Gloucester city fathers believing that some kind of boutique fishery will emerge from the current crisis--yet the fishers in Gloucester are having a far more difficult time adapting to a new political economic climate than those in either Chatham or Point Judith.

The same applies to variations in a port's isolation or distance from main transportation thoroughfares such as interstate highways. Chatham is no less isolated than Gloucester, nor Stonington any more isolated than Machiasport or Jonesport, yet variations exist in terms of these communities' relative dependence on groundfishing. Ocean City, MD and Cape May, NJ are roughly equidistant from the sprawling metropolitan area that includes Philadelphia, Wilmington, and Camden, but the fishing fleet in Ocean City has been relegated to a small harbor on the south edge of town while the Cape May fleet, as just described, ties up in a bustling tourist center. The Ocean City fleet, further, may be destined for further reductions, judging by the land for sale around the commercial fishers' harbor--land which suggests that zoning has begun to expand the tourist shops and recreational marinas into the space currently occupied by the commercial fleet. By contrast, the Cape May fleet seems well ensconced.

G3. Assessment of Variations Within Ports

Observations addressing the variations between MGF ports are further complicated--if also partially explained--by the variation that exists within the ports, between different fleets and groups of fishers. Within each of these ports, some fishers are more dependent on the MGF than others; these distinctions seem loosely related to fishers' degree of specialization, their histories of moving between fishing and nonfishing fields, vessel size and ownership status (how heavily the vessel is mortgaged), and their histories of participation in alternative fisheries.

In addition to these social and economic sources of dependence, cultural factors also affect dependence on the MGF. Although ethnic factors differentiate groundfishers of New England and the Mid-Atlantic states, these distinctions become important only in so far as they have resulted in ethnic enclaves and ethnically-grounded economics. For example, the New Bedford fleet is composed of large numbers of Portuguese fishers and Norwegian fishers, yet the Portuguese have developed a thriving Portuguese ethnic enclave while the Norwegian enclave is less isolating. Thus, for the Portuguese fleet of New Bedford, ethnic status becomes an important factor in determining the character of one's dependence on and behavior in the fishery, but among the Norwegians ethnic status is less important. This is because the enclave nature of the Portuguese community in New Bedford has made it possible for Portuguese fishers to remain relatively detached--culturally, linguistically, and occupationally--from other economic sectors of New Bedford. On the one hand, this makes it particularly difficult for them to move into other economic sectors as crises develop in fisheries. On the other, they are more willing to keep other Portuguese crew members employed even under conditions of deteriorating incomes and many of them have kept the option open of returning to Portugal by continuing to maintain strong social ties with their home communities in Portugal.

The Portuguese of New Bedford (including the islanders such as Cape Verdeans) live in what is considered a transnational community, with social and cultural roots and branches in two and sometimes more than two nations (Basch, Glick-Schiller, and Szanton Blanc 1995). Gloucester Italian/Sicilian fishers occupy something of a middle ground between Norwegians and Portuguese in terms of how much ethnic factors influence their responses to fishery crises. They do not seem to have achieved the same level of transnationalism as the Portuguese fishers of New Bedford, but they do tend to keep other Italian crew members employed as incomes decline (Doeringer, Moss, and Terkla 1986).

The communities have also produced physical expressions of their dependence of fishing. For example, linking a religious structure to fishing, such as the Church of the Fishermen in Gloucester, with its murals and sculpture dedicated to fishing, indicates how important fishing has been and is still to the well-being of church parishioners. Fishing is at the very core of their daily existence, and special prayers for fishing and fishers are a regular part of religious services. Social, cultural, and economic dependence are combined in such symbolism. Because the church in these communities acts as a social extension of the hope and aspirations of its members, religious recognition of fishing is certainly a profound indicator of historical fishery dependence in a community.

Secular cultural indicators of fishery dependence include public dedications to fishers and the fishing industry, such as museums dedicated to preserving the artifacts and history of the industry. New Bedford's whaling museum is one such example, celebrating fishing and mariners of all kinds. Chatham publicly displays its support of fishing with a prominent plaque on the town dock. In Gloucester, perhaps the most famous American fishing icon of all is the bronze statue of the Gloucester fisherman. In a media climate where the fishery has been portrayed as dead or dying, it is significant that Gloucester has recently undertaken to erect a statue of the fisherman's wife, scheduled to be completed and in place several years from now.

These observations lead us to consider what features of New Bedford's and Gloucester's MGF make fishers here more dependent than Portland, as well as to reconsider our notions of community and of dependence. Clearly, those dependent on the MGF do not include entire cities and towns, but subpopulations of larger metropolitan areas and rural towns that comprise communities in the sense of an occupational community or a natural resource community. We suggest that dependence of groundfishing does not vary by city or by town as much as by classes of fishers within the industry who concentrate in specific ports.

While some of the secondary, rural, isolated ports in Maine and other states can be considered highly dependent on fishing, it is difficult to place any of the principal groundfishing ports (besides, possibly, New Bedford) into this category. Portland is a bustling center of commerce, and even New Bedford is exploring alternative economic opportunities in the wake of fishing and manufacturing declines. Gloucester is nurturing a growing tourist trade and fostering its image as an artists' colony. Chatham and Point Judith are neither isolated from commercial activity nor suffering from a dearth of alternative economic opportunities. Even within many of these communities--particularly those in Downeast Maine--one would be hard pressed to argue that the MGF is either as important to communities like Machiasport or Jonesport as it once was or as important as the more densely populated fisheries such as lobster, urchin, eel, scallop, and shrimp.

Despite these observations, several features of the MGF recommend against encouraging its decline, through the imposition of ever more restrictive regulations, on the basis of the rather cold argument that relatively few families will be negatively impacted. The industry is deeply intertwined with the social and cultural resources of the five principal MGF communities and constitutes an important link to one of the nation's most promising renewable natural resources. As more and more of the ties to credit institutions and arrangements, markets, marine suppliers, ice manufacturers, and others directly or indirectly involved in the industry weaken, due as much to negative publicity and perceptions as to the realities facing the fishery, these components of the social infrastructure rely more and more on alternative sources of fish, usually from imports, and alternative patrons for their goods and services. The following classification of communities in terms of dependence thus considers the current difficulties facing the MGF in terms of the potential for these kinds of relationships deteriorating, leaving the Northeast without a basis from which to marshal an efficient fishery.

We have isolated the following five variables as those that reflect and best predict dependence on the MGF. It will become obvious that the five variables overlap somewhat; thus, they must be considered together. These are:

1. **Relative isolation or integration of fishers into alternative economic sectors, including political participation.** To what extent have the fleets involved in the MGF enclaved themselves from other parts of the local political economy or other fisheries? How much have the MGF fleets become, similar to an ethnic enclave, closed communities?

2. **Vessel types within the port's fishery.** Is there a predominance of large vessels or small vessels, or a mix of small, medium, and large?

3. **Degree of specialization.** To what extent do fishers move among different fisheries? Clearly, those fishers who would have difficulty moving into alternative fisheries or modifying their vessels with alternative gears are more dependent on the MGF than those who have histories of moving among several fisheries in an opportunistic fashion.

4. **Percentage of population involved in fishery or fishery-related industries.** Those communities where between five and ten percent of the population are directly employed in MGF fishing or fishing-related industries are more dependent on the MGF than those where fewer than five percent are so employed.

5. **Competition and conflict within the port, between different components of the MGF.** Extensive competition and conflict between fishers within the same port--as well as between different actors in the MGF, such as boat owners and captains--seem to be associated with intensive fishing effort and consequent high levels of dependence on the MGF. In this case, dependence may have a strong perceptual dimension, with fishers perceiving the resources they are harvesting to be scarce and that one fleet's gain is another fleet's loss.

Within each box under the ports we have included a plus sign or a minus sign, which indicate more (+) or less (-) dependence on the MGF. The more plus signs a port ends up with, simply, the more dependent that port is on the MGF.

Table 5: Comparisons of the Five Primary MGF Ports By Indicators of Dependence

Indicator	New Bedford	Portland	Gloucester	Point Judith	Chatham
Integration	Isolated +	Integrated -	Isolated +	Integrated -	Integrated -
Vessel Types	Large +	Large to Mixed +	Large +	Medium -	Medium -
Specialization	High +	Medium +	High +	Low -	Low -
% of pop	5 - 10% +	<5% -	<5% -	<5% -	<5% -
Competition	High +	Medium to High +	High +	Low -	Low
Total +	5	3	4	0	0

This classification system leads us to rank the ports, from most to least dependent on the MGF, as follows:

1. New Bedford/Fairhaven
2. Gloucester
3. Portland
4. Chatham
5. Point Judith

H. Social and Cultural Parameters of the MGF: Issues and Data Bases

This concluding section to the synthesis contains three parts. First, we present the results of the perceptual tasks we asked fishers and others familiar with the industry to perform in each of the ports, revealing how they classify various regulations and rules of government agencies and private business. Second, we present a list of several problems that emerged again and again during our interviews and reflect key ways in which fishers are likely to be affected by regulations, as well as how they view regulations and regulatory agencies in terms of legitimacy. Finally, we discuss the various forms of capital in the fishery and how they are tied to the future of the industry under current conditions and proposed regulations.

H1. Perceptual Issues: Results of the Pile-Sorting Tasks

To get some idea of how fishers thought about various government regulations and policies of private firms, we asked respondents to perform relatively easy grouping or "pile-sorting" tasks in each of the five primary ports. Thirty-seven fishers and others familiar with the MGF sorted 24 cards bearing the following polices and regulations (symbols used in the computer output are in parentheses accompanying the stimuli):

- | | |
|--|----------------------------------|
| 1. Insurance Policy (IP) | 13. Bank/ Credit Policy (BNK) |
| 2. Limits on Participation in Multiple Fisheries (LMF) | 14. Limiting Days at Sea (DAS) |
| 3. Entry Based on Historical Participation (HP) | 15. Access Issues (AI) |
| 4. Limited Entry (LE) | 16. Mesh Size Restrictions (MSH) |

- | | |
|---|------------------------------------|
| 5. Permanent Closures (PC) | 17. Landing Restrictions (LR) |
| 6. Species Restrictions (SR) | 18. Season Closures (SC) |
| 7. Net Bans (NB) | 19. Area Closures/ Crowding (AC) |
| 8. Individual Transferable Quotas (ITQ) | 20. Licensing Moratorium (LM) |
| 9. Call-In System (CI) | 21. Area Closures/ Habitat (NU) |
| 10. Poundage Quotas (PQ) | 22. Limits on Numbers of Gear (LG) |
| 11. Marine Mammal Protection (MM) | 23. Gear Licensing (GL) |
| 12. Tow Time Restrictions (TT) | 24. Licensing By Fishery (LF) |

We selected these items based on early interviews with fishers regarding those laws and rules of private businesses that had influenced their fishing behaviors. We simply handed the respondents cards with the above regulations printed on them and asked them to sort them into piles based on how they believed them to be similar. We told them they could have as many or as few piles as they wanted; what mattered was their idea about how they fit, or didn't fit, together. After sorting the items, we asked them to state why they had placed them in the piles that they had.

Tasks of these type generate data that are amenable to hierarchical clustering and multidimensional scaling techniques of analysis. Both of these methods essentially count the number of times each of the above 24 items occurs with each other item in the groups that fishers produced, but each method presents the output from these counts somewhat differently. An additional benefit that derives from this method is that, while sorting the cards, respondents often talk extensively about how they feel about certain regulations; often it is these comments that are more useful than the clustering or scaling output.

H2. Clustering Analysis

Figure 2: Results of Hierarchical Clustering Analysis

Group 1:	Group 2:
Banking & Credit Policy	Marine Mammal Protection Regulations
Insurance Company Policy	Area Closures due to Crowding
Access Issues (Dock Space)	Area Closures due to Habitat or Nursery
	Season Closures
	Permanent Closures
Group 3:	Group 4:
Individual Transferable Quotas	Tow Time Restrictions
Poundage Quotas	Species Restrictions
	Net Bans
	Landing Restrictions
Group 5:	Group 6, sub-group 1:
Call-in System	Entry Based on Historical Participation
Days-At-Sea Restrictions	Limited Entry
Mesh Size Restrictions	Licensing Moratorium
Limits on Numbers of Gear	Group 6, sub-group 2:
	Limits on Multiple Fishery Participation
	Gear Licensing
	Licensing by Fishery

Clustering analysis groups the items, showing hierarchical relationships among them, while scaling plots them in two-dimensional space so that those closer to one another on the MDS "map" are presumably closer to one another in the minds of fishers. The clustering analysis produced the groups and sub-groups as indicated in Figure 2.

Figure 3. Hierarchical Levels Among Groups of Regulations

	B		I		D	M		L															
I	N	A	M	A	P	S	N	T	P	T	S	N	L	C	A	S	L	H	L	L	M	G	L
P	K	I	M	C	C	C	U	Q	Q	T	R	B	R	I	S	H	G	P	E	M	F	L	F
	1	1	1	1		1	2		1	1		1		1	1	1		2		2	2		

Level	1	3	5	1	9	5	8	1	8	0	2	6	7	7	9	4	6	2	3	4	0	2	3	4	
0.8108	XXX
0.7838	XXX	XXX
0.7568	XXX	XXX	XXX	.	.	XXX	.	.	XXX
0.6847	XXX	XXXXXX	XXX	.	.	XXX	.	.	XXX
0.6757	XXX	XXXXXX	XXXXXX	.	.	XXXXXX	.	.	XXX
0.6396	XXX	XXXXXX	XXXXXX	XXXXXX					
0.6216	XXX	XXXXXX	XXX	XXXXXX	XXXXXX						
0.5946	XXX	XXXXXX	XXX	XXX	XXXXXX	XXXXXX						
0.5676	XXX	XXXXXX	XXX	.	.	XXX	XXX	XXXXXXXXXXXXXXXX							
0.5676	XXX	XXXXXXXXXX	XXX	.	.	XXX	XXX	XXXXXXXXXXXXXXXX							
0.5495	XXX	XXXXXXXXXX	XXX	.	.	XXXXXX	XXX	XXXXXXXXXXXXXXXX							
0.5045	XXX	XXXXXXXXXX	XXX	.	.	XXXXXX	XXXXXX	XXXXXXXXXXXXXXXX							
0.4937	XXX	XXXXXXXXXX	XXX	.	.	XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX							
0.4730	XXX	XXXXXXXXXX	XXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX															
0.4723	XXX	XXXXXXXXXX	XXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX															
0.4685	XXXXXX	XXXXXXXXXX	XXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX															
0.4523	XXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX																	
0.4324	XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX																		
0.3957	XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXX																		
0.3022	XXXXXX	XXXXXXXXXXXXXXXXXX																							
0.1204	XXXXXXXXXXXXXXXXXX																								

These groupings are not too surprising. The output above shows that the distinctions between the groups become less and less distinct as we get into the higher group numbers. That is, the items in groups 4, 5, and 6 are less distinct from one another than the items in groups 1, 2, and 3. Groups 4, 5, and 6 are correlated at level .4723, while groups 1 and 2 are correlated at the .1204 level and groups 2, 3, 4, 5, and 6 at the .3022 level. These numbers indicate that fishers are making progressively less fine distinctions between groups as we move from left to right across Figure 3.

Group 1 are primarily private firms' or private individuals' policies, and these were the most distinct from the other regulations we presented to fishers. We will see in the MDS output below, that these three regulations were far distant from the others, and that presumably they differ significantly in fishers' minds because they are formulated in the private sector. About these, one fisher said, "These have nothing to do with NMFS. They are typical business issues and easily resolved."

Most of the respondents associated the stimuli in Group 2, of course, with "conservation" methods, often considered necessary to preserve spawning or nursery areas or to protect specific marine species. This group generated mixed responses, in that many fishers commented that marine mammals were over protected yet agreed with closures designed to protect habitats. "These are regulations that affect my operation," said one, "but I have no real opposition to them." "Closures are a must," said another. Indeed, finer distinctions within group shows that marine mammal

protection was correlated with the others at a lower level (.4324) than any of the others, suggesting that some fishers put it into this group reluctantly and others placed it elsewhere. Fishers expressed the most positive feelings about regulations in this group, however, modifying them with adjectives like "needed," "good," or "helpful."

Group 3, quite obviously, are quota systems, and considered problematic by most fishers. Fishers who fish from smaller sized vessels, in particular, worry that ITQs will result in corporate in-roads into fishing and speed the process of "proletarianization" in the fishery, converting owner-operators into hired captains or pushing them out of the fishery altogether. "These give the resource away to private ownership," said one. A few respondents included these systems in piles with the restrictions in groups 4, 5, and 6 and simply stated that these kinds of regulations restricted a fisher's flexibility, were bureaucratic attempts to regulate fisheries, and simply, "won't work."

Comments about the items in group 4 ranged from those who considered these sensible to those who considered them foolish. One fisher said, "These regulations make me see red!" (i.e., make him angry), but another characterized these as "Good if you can enforce them," perhaps referring to the difficulties one state has controlling landings in a port in another state (for example, Maine fishers landing lobster in Boston caught in dragger nets). In general, however, they were seen as ways to protect stocks and limit fishing effort that were difficult to enforce.

Items in groups 5 and 6, all associated with confining fishers to specific fisheries, "boxing" them in, and limiting their flexibility, were the most despised by those we interviewed. Those in group 5 were associated with Amendments 5 and 7, of course, and those in group 6 were seen primarily as attempts to limit fishing through licensing requirements. The two groups are not that distinct, related to one another at the .4723 level, and they all elicited a range of extremely negative and often heated comments, such as:

"These will put me out of business."

"I disagree with all these issues. They are not legitimate. Some are ludicrous. It's not right to tell people don't try as hard as you can. Conservation is not limiting gear and species."

"These are management policies that are unjust, unenforceable, and unworkable."

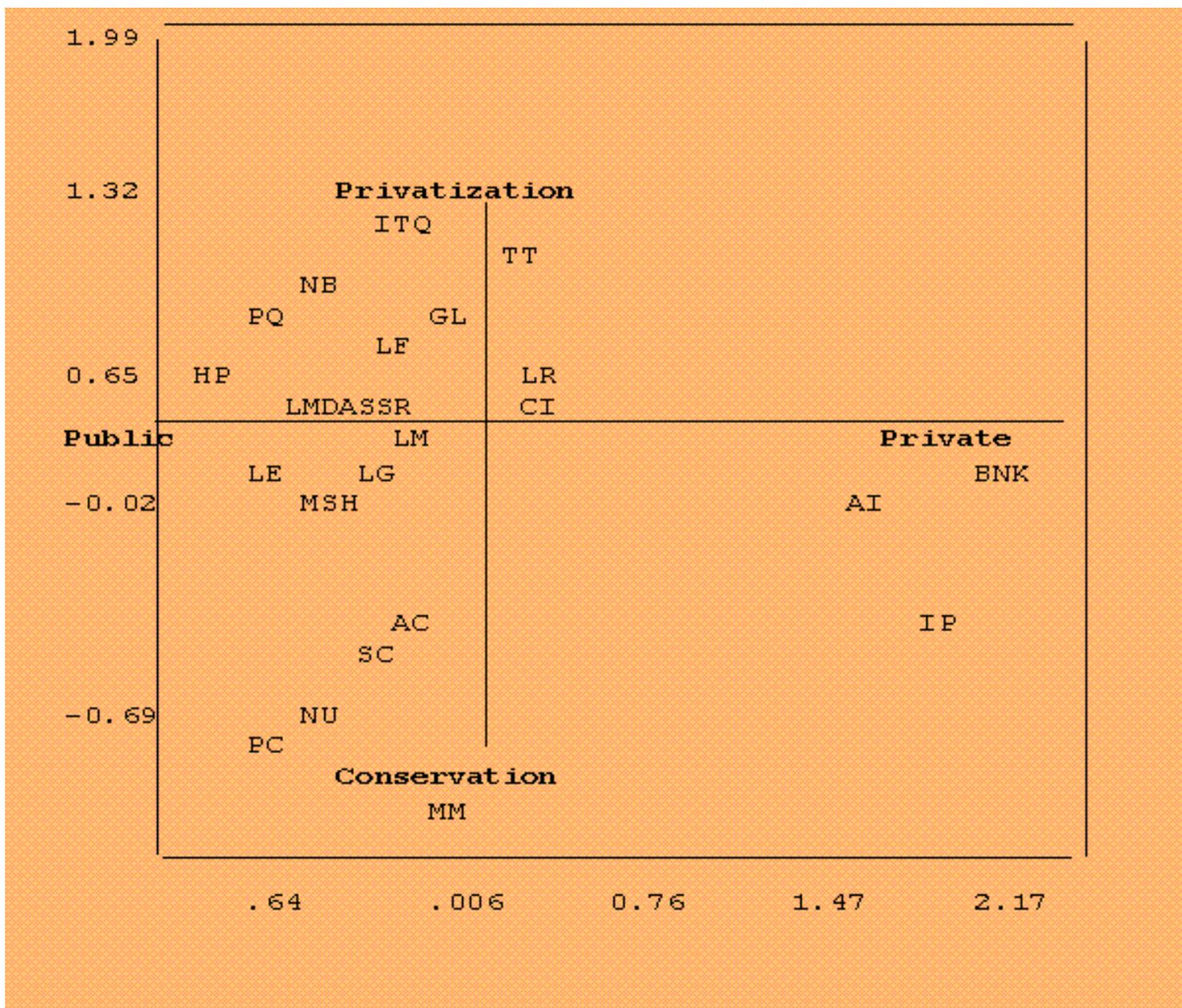
"These are problem things that will do nothing for conservation--a waste of time."

Overall, the clusters and their associated comments suggest that fishers care primarily about conserving the resource, but do not believe that many of the regulations designed to conserve resources will actually accomplish this.

H3. Multidimensional Scaling

The MDS output (Figure 4) complements the clustering analysis by, first, showing that fishers regard the rules and policies of private firms (IP, BNK, AI) as quite distinct from government regulations. Thus, one dimension along with which fishers organize their thinking about regulations is the Public-Private dimension, indicated by the vertical arrow on Figure 4. The horizontal arrow is somewhat more difficult to interpret. This indicates a transition from those regulations fishers considered actual conservation measures, protecting the resource, even if sometimes they saw them as overly protective (MM, PC, NU, SC, AC; bottom of the chart) to those highly politicized regulations that are seen as mechanisms, disguised as conservation measures, that will further privatize or turn the fisheries over to corporate entities.

Figure 4: Multidimensional Scaling of Regulations as Perceived by New England Groundfishers



H4. Concrete Problems and Issues Perceived By Groundfishers and Their Families

Several issues surfaced again and again in our interviews with fishers and others in the MGF communities. These indicate dependence, provide hints about probable responses to the crisis by groundfishers, and isolate other concerns raised during the course of field work. They are particularly important in considering the potential impacts of new and future regulations. These include:

1. Past adaptations to crises, whether ecological, economic, political, etc. Most fishers agree that they will respond to the current crises in ways similar to their responses of the past. Through an historical analysis, covering recent history, we could enumerate some of the common methods fishers respond to crises. Primary among those we encountered in the field are: first, moving to other fishing grounds or territories (e.g., migration), which is a particularly common approach

among those, such as the Portuguese, who are already involved in a transnational community; and, second, experimenting with alternative fisheries. In addition, fishers and fishers' wives have responded to past and current crises by organizing for more effective political participation, have challenged laws either formally (through law suits and injunctions) or informally (by ignoring or discovering ways to circumvent regulations), and have moved between fishing and nonfishing employment, generally in construction and manufacturing. From those whom we interviewed who have moved between shore-based occupations and fishing, we elicited occupations primarily attached to the marine environment (e.g., shipping, working on research vessels, longshoremen, working for marine repair services).

2. Specific participation in other fisheries. Many of the fishers we interviewed had the sense that the regulations were confining them or "boxing them in" to one fishery at the expense of allowing them to take advantage of developments in other fisheries. This reduces the flexibility that is a hallmark particularly of smaller and medium-sized vessels, as well as contradicts current government and private efforts to promote underutilized or newly developed fisheries. At the same time, the wholesale promotion of new fisheries is often considered suspiciously by fishers, such as promoting dogfishing without having a sound knowledge base about the fishery's potential to reproduce itself.

3. Fishers' perceptions of the current crisis and of regulations in general. From fishers' points of view, there exists a severe crisis of legitimacy within those governing bodies and agencies that currently regulate the fisheries. Nearly universally, fishers complain about a lack of communication between fishery biologists and fishers, about the inaccuracies of fishery biology, about the concentration on economic efficiency of the fisheries without considering social impacts of regulations, and about the failure of institutional responses to crises. Enforcement, fishers believe, will become increasingly difficult without active involvement of fishers in the decision-making process. One of the primary complaints centered on logbooks. Fishers complained that the new logbooks were designed for statistical reporting more than in terms of the realities of life aboard fishing vessels, yet they fear that, despite this, the logbooks are not being utilized. Fisheries biology is thus falling further and further behind as the data accumulate.

4. Failures of institutional/ governmental responses to crisis. Most fishers agree that the vessel buy-back* and the retraining programs were poorly designed, poorly administered, and are only helping those who had already been marginalized within the fishing community because of poor fishing performance. The buy-back program has, according to those we interviewed, benefitted individuals who have already left fishing. Active fishers, especially those with strong social attachments to their crews, have not sold out because they would be abandoning their employees. The retraining programs are not based on any past appreciation of the actual economic behaviors or skills of fishers, but too focused on aquaculture and other programs not necessarily relevant to fishers' skills. Portuguese and other fishers who have difficulty with the English language, in particular, found the retraining programs completely inadequate.

*Note by Clay: For information on current legislation regarding vessel buyback programs, return to the NEFSC homepage, choose "Information", then Magnuson-Stevens Act, then go to sec. 312 (b) and (c).

5. Safety issues. Many of the new regulations encourage unsafe behavior in the fisheries. In particular, regulations and economic developments resulting from regulations both promote reductions in crew sizes (because shares are dwindling, for example) and encourage fishers to remain at sea during rough weather (because of days-at-sea limitations*). Crew reductions, of course, result in more work aboard vessels per crew member and the neglect of certain activities associated with safety. Increased competition and conflicts between vessels and between fishers from other ports, due to the perceptions that fishers are having to divide up an ever shrinking pie, have decreased the extent to which fishers help one another out of trouble on the open seas. While nearly all fishers reported that they will assist vessels truly in danger, many said that those in marginally dangerous circumstances are more likely to be left alone.

*Note by Clay: One of the reasons for this was that, under Amendment # 5, vessels taking the fleet days-at-sea allocation limited their total days-at-sea by staying in port at the end of each trip for a period proportional to length of their trip. Thus, if you put in for rough weather, you were stuck in port. Under Amendment # 7 the fleet allocation became an actual number of days, just like the individual allocations. Thus, this particular bad incentive has been eliminated.

6. Origins of the current crisis. Nearly everyone agrees that the current crisis originated with the overcapitalization of the fleet during the 1970s and 1980s, in part driven by low-cost loans underwritten by the US government. Access was too open during that period, as well, with licensing restrictions far too loose to exclude anyone. Many see another crisis developing, as government efforts to promote underutilized species (such as dogfish) proceed without adequate biological knowledge about these species.

7. Uneven regulation of the fisheries. Related to the point just mentioned, fishers tend to agree that the government is overregulating some species (e.g., haddock) while underregulating others (e.g., monkfish and dogfish). They are not responsive to either the concerns or the observations of fishers regarding stock assessments, and cannot be predicted to respond to information about stocks in what fishers consider a rational manner. For example, the haddock stocks are seen to be so large that many pounds are being wasted because they cannot legally land them, yet fishers believed that reporting this waste would lead NMFS officials to close the fishery. These beliefs, widespread in the industry, lead fishers to conceal their information about stocks.

8. Competition within and between ports has reached epidemic proportions. There is a tendency for smaller-vessel fishers to blame large-vessels fishers, for different gear types to blame one another, and for fishers from one port to blame fishers from others for overfishing and damage to substrates or fish populations.

9. Failure of management to recognize the impacts of fisheries regulations on families and households. Fishers are embedded in households that represent a shoreside extension of fishing activity. Wives and families of fishers are often intimately involved in management of fishing operations, including tracking of finances, attending public hearings on new regulations, and providing political and public input on fishery issues. Management policies that do not recognize this can negatively impact the social, psychological, and economic well-being of the fisher household. Costs to fisher households can range from wives being forced to work multiple jobs

outside the home to foreclosures on homes whose mortgages are tied to fishing vessel mortgages.

10. Lack of support for domestic fishery products by the government. Recent downturns in ex-vessel prices of groundfish have been brought about by unchecked influxes of foreign fishery product. Given the economic difficulties already faced by fishers, allowing foreign imports to drive domestic fishers out of business is perceived as an unfair government business practice.

11. Credit crisis. Perhaps the most devastating problem to develop in recent years is the drying up of institutional sources of credit and financial capital due in large part to the negative publicity surrounding the fisheries. Similar to farmers, who need credit to help them through bad crop years, fishers depend on creditors to cover trip expenses and weather poor fishing conditions that may last whole seasons or years. Yet suppliers and financial institutions alike have begun tightening the credit they extend toward fishers. More devastating to owner-operator family fishers, home mortgages and vessel mortgages are often tied together in loan agreements; as banks target vessels for foreclosure, they target fishers' homes as well. The deterioration of institutional or conventional forms of capital, then, has increased the importance of alternative forms of capital, which we discuss below.

H5. Alternative Forms of Capital and the Loss of Natural Resource Infrastructures

We know, of course, that several suppliers of goods and services depend directly or indirectly on the MGF, yet the extinction of the MGF would not necessarily entail anything more than minor downturns in their own scale of operations. Fuel providers and boat builders and maintenance personnel could seek alternative customers in the shipping, recreational, ferrying, and other fleets. Municipal harbor masters would likely have little trouble renting precious dock space to pleasure and merchant crafts. Seafood markets and processing firms could pioneer relationships with imported and aquacultured fish or move to specialize in those local species that remain abundant and available. Perhaps only ice manufacturers and highly specialized marketing and service providers would suffer severely from a disappearing MGF.

Nevertheless, a complete collapse of the MGF would have far more devastating consequences than the simple listing of firms and numbers of fishers who would be mildly or severely dislocated. Most of the deepest problems derive from the loss to the local economy of local investment: specifically, investment that is rooted in local history and tradition and that remains tied to the community through economic downturns for reasons other than mere profit. A dynamic MGF provides a sector capable of promoting social and economic diversity in the communities we have been studying.

The importance of forms of capital that complement and at the same time supplement investment or financial capital of capitalist firms derives, in fact, from their abilities to recruit new members into the occupational hierarchies of businesses like the MGF and to provide an increasingly wider set of growth and meaningful economic opportunities for those who choose to enter the MGF. These

alternative forms of capital include human, cultural, and social capital, with social capital particularly central to our understanding of the MGF.

The concept of social capital was recently explicitly articulated by the late James Coleman (1988, 1990), yet versions have appeared in sociological and anthropological theory in several forms. Coleman himself gives the economist Loury credit for coining the concept as an attempt to compensate for the bias toward individualism in economics (1990: 301). Drawing on several works in sociology and anthropology that demonstrate ways in which social ties influence and organize economic behavior, and using several illustrations, Coleman arrives at a definition of social capital that returns to his central themes of behavior as the product of self-interest and control (1990: 302):

"Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence. Like physical capital and human capital, social capital is not completely fungible, but is fungible with respect to certain activities. A given form of social capital that is valuable in facilitating certain actions may be useless or even harmful for others. Unlike other forms of capital, social capital inheres the structure of relations between persons and among persons. It is lodged neither in individuals nor in physical implements of production."

In Coleman's sense, social capital enables individuals with reduced or no access to investment capital to accumulate the symbolic and material means to participate successfully in an economic activity such as groundfishing. Social capital depends, however, on the social field in which people give and receive jobs, information, low-interest or no-interest loans, and so forth. It is that social field which gives social capital life, transcending the individual without leaving her or him out of the equation, "both accounting for different outcomes at the level of individual actors and making the micro-to-macro transition without elaborating the social structural details through which this occurs" (1990: 305).

The social relations that engender social capital also assure its circulation through the group and its continual replenishment and reproduction. Drawing on social capital carries with it the obligation to replenish the fund, depending on trust, expectation, normative values, cultural rules, etc., and some means--authority, shame, gossip, force--to enforce the obligation.

Two other forms of capital--human and cultural--are key to understanding the depth of the current crisis in the MGF; these forms of capital are similar to social capital in that they depend on social ties that have meaning for the individuals who benefit from them. Human capital--simply, the skills and education levels one achieves through schooling, apprenticeship, experience, and other formal and informal training--is more well-known among economists than either social or cultural capital, and more recognized by the general public (including potential employers) as something, if not

entirely tangible, certainly useful.

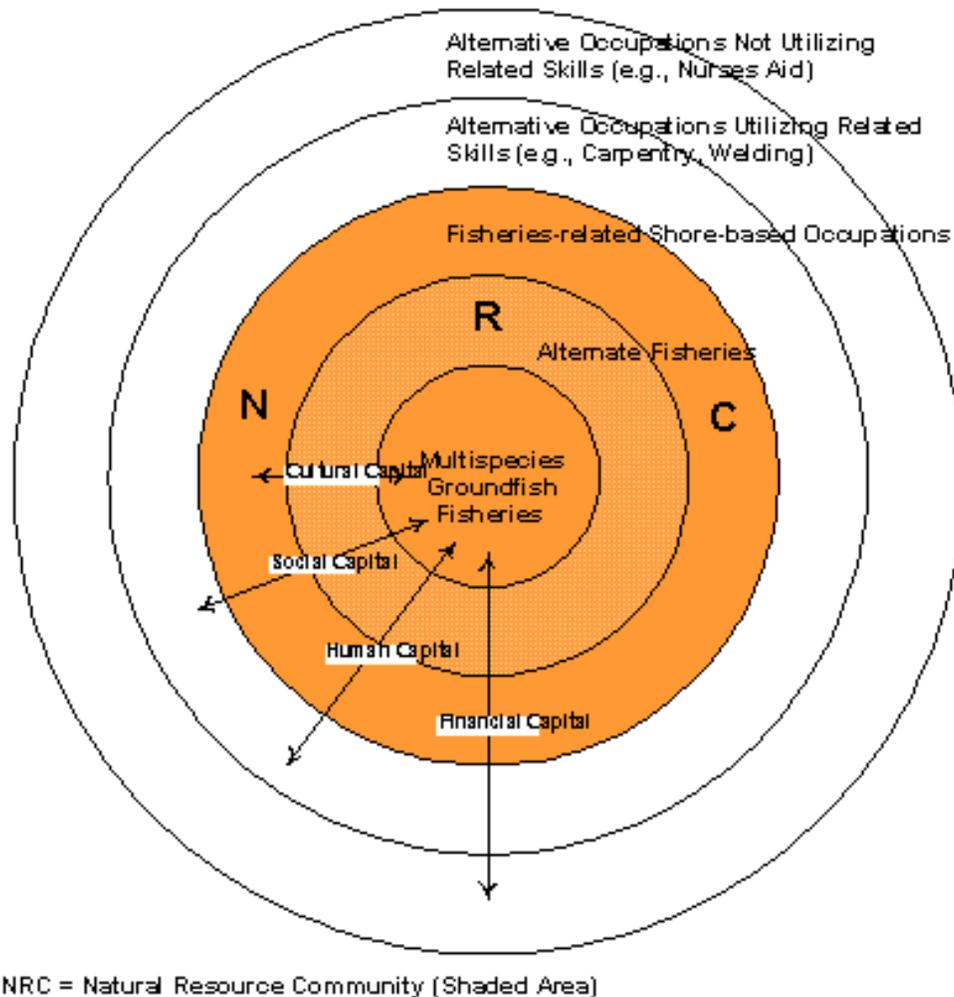
Cultural capital is both less well-known and less widely recognized by the general public, yet most potential employers consider one's cultural capital in selecting employees. Cultural capital consists of those subtle and overt characteristics we learn as parts of meaningful cultural groups, including our use of language and slang, our notions of personal space, how we dress and carry ourselves, and the myriad parts of our personalities that make us more or less comfortable and predictable to be around. The groups in which people acquire cultural capital include, for example, families, neighborhoods, special cultural centers such as bars or exclusive college campuses, churches or other voluntary associations.

The adjustments and difficulties we are currently witnessing in the MGF, particularly the difficulty it seems to be experiencing as it reproduces itself, are steps toward eroding the social, cultural, and human capital upon which an effective fishery depends. Unfortunately, this occurs at a time when the fishery can least afford it: that is, when conventional credit systems are deteriorating as well. Doeringer, Moss, and Terkla (1989: 79-80), in their discussion of the share systems that characterize payments to labor and capital in the groundfishing industry, recognize the importance of these alternative forms of capital without explicitly defining them as we have. Instead, here and elsewhere in their text, they differentiate between "kinship and capitalist vessels," and describe how "kinship vessels are better positions for investment than capitalist vessels." During boom periods in the fisheries, the share system results in some of the income that would return to capital--to the vessel--under a strict wage payment system instead returning to labor--the crew--whether the vessel is family owned and operated or part of a capitalist fleet. On kinship vessels, this capital is then held in reserve by crew and can be accessed again during years of reduced catches.

This is less liable to occur under current conditions. Not only is capital not likely to return to the vessel as it becomes more difficult to enforce the mobilization and use of alternative forms of capital within the fishery, but these alternative forms of capital are crucial in accessing other sectors that provide buffers to fishers and their families during downturns in fishing stocks, markets, or restrictions that force them to seek other opportunities to cover their expenses in the short term. We can visually portray how alternative forms of capital forge relationships between the MGF and other economic alternatives as follows:

Figure 5

Model of the Relationship Between Alternate Forms of Capital and Occupational Roles in the Natural Resource Communities of the Multispecies Groundfish Fisheries



This representation indicates the extent to which these alternate forms of capital are important in linking the groundfishing industry and groundfishers into wider economic sectors. It suggests that as long as a healthy MGF exists--one that continues to promote the generation, mobilization, and use of alternative forms of capital--individuals operating within the industry will be able to weather economic and ecological downturns and reproduce the fishery by means of their access to other sectors by drawing on various forms of capital. It is in this context we consider the future of the MGF, particularly its ability to reproduce itself, and the future ability of the United States to continue contributing to the GNP through its exploitation of the oceans.

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A1. Overview of Maine Groundfishing

Natives of Maine draw much of their identity and trace their ancestry to traditions based on coastal and marine resources and other interactions with the natural environment (Duncan 1995). Maine fisheries are best known for lobstering, which has emerged as a highly specialized and lucrative fishery but which, currently, is grappling with territoriality and crowding issues that may become more pronounced as continued restrictions on groundfishing force ground fishers into alternative summer fisheries (Acheson 1987; Ellsworth News 1996). Although they are quite distinct in terms of gears and parts of annual rounds, groundfishing and lobstering overlap seasonally, both being primarily summer fisheries yet both containing the possibility to employ fishers through the year. Winter lobstering may lead to conflicts with scallop draggers and winter groundfishing is more haphazard than summer groundfishing due to weather conditions, but both continue through the winter months on a limited basis.

Regionally, the groundfishing fleet in Maine is far more concentrated than the lobstering fleet. Virtually every Maine port--from Kittery to those distant, rural, and isolated ports

north and east of Machiasport--is home to several, often hundreds, of lobster fishing vessels and lobstermen, with even small ports having thirty to forty of the distinctive 35' to 50' crafts that sell to three or four lobster cooperatives or dealers. Thousands of wooden and wire traps, either square or aircraft-hangar shaped, crowd yards and docks throughout every sheltered port along Maine's coast. A lobster adorns the Maine license plate and lobster pounds, restaurants, and other benchmarks of the industry's place as a centerpiece of the coastal economy--the single most important mainstay of thousands of coastal Maine families--clutter the roadways in and around any coastal access point.

[The same cannot be said of groundfishing.](#) Since 1987, when the Portland Fish Exchange opened, since stock declines of the early 1990s and associated closures of nursery grounds, and since several regulatory moves restricted gillnetting activities (principally marine mammal protection legislation), the industry has become concentrated in and around Casco Bay, Portland. Investigators visited ports from Machiasport south and west to Kittery, finding one or two gillnetters or draggers per port north and east of Stonington and one or two south of Saco, a community near Portland.

[The declines in groundfishing activities north and east of Stonington reflect the problems associated with marine mammal protection and the growth of two alternative fisheries: sea urchins and eels.](#) In addition, a principal dealer in Rockland, formerly a major groundfish port, curtailed interest in groundfishing shortly after the opening of the Portland Fish Exchange. The declines in groundfishing activities south and west of Portland reflect the increasing growth and entrenchment of summer recreational uses of the coast, where tourist hotels and other activities--including sportfishing, whale-watching, and recreational boating infrastructures--have reduced access points for groundfishing vessels and fish landing facilities. This does not imply that most of Maine's coast, from Portsmouth, NH on the border to Bath, Rockland, and Acadia National Park, is immune to these pressures of recreational coastal development. A comparison of 1985 and 1995 aerial photographs of Portland's waterfront, for example, reveals that the principal growth has been condominium and other non-fishing development.

[Despite competition from other industries for space, the Maine groundfishing fleet remains active, geographically dispersed across several communities \(mostly between Saco and Rockland\), and internally diverse with regard to gears, vessels sizes, and involvement in other fisheries.](#) Maine ground fishers, their families, the associations they have formed, and those processing and harvesting businesses who buy, pack, and ship their catch have constructed and maintain a complex, interconnected physical and social infrastructure around the pursuit and capture of groundfish.

Maine's groundfishing fleet has three principal components:

1. Vessels ranging from 80' to 100' in length that fish, usually, for 10 days at a time. These vessels rarely fish in Maine state waters, usually traveling as far as Georges Bank and beyond and fishing primarily with dragger nets. Crews on these vessels usually consist of a captain and two to three other individuals.
2. Vessels ranging from 45' to 79' in length that fish for 4 to 5 days at a time, also using dragger nets. Crews usually consist of a captain and one to two other individuals.
3. Boats under 45' who fish for a single day at a time, usually with gillnets. Crews usually consist of a captain and one other individual.

Most medium and large vessels land their groundfish at the Portland auction, as well as many of the gillnetters, yet we confine most of our discussion of the small vessel gillnetters to our discussion of Stonington, highlighted in the secondary port section. Larger vessels, clearly, dominate the activity at the exchange and along the Portland waterfront, and medium-sized vessels tie up at harbors all around Casco Bay. In addition to Portland, the Casco Bay area includes the following ports, each of which can be considered an extension of a diverse and widely distributed groundfishing fleet (Greater Portland Council of Governments 1991*b*:5):

Scarborough

Freeport

Cape Elizabeth

Brunswick

Falmouth

Harpswell

Cumberland

Phippsburg

Yarmouth

West Bath

Portland itself is a diversified community with a complex economy, the center of a county that boasts the second lowest unemployment rate (between 4% and 7%) in the state (Maine Department of Labor 1994). The civilian labor force in the Portland Metropolitan Area averages 132,290 for the year, reaching lows of 126,050 during the month of September and reaching a high of 138,100 during December, when the unemployment rate drops to 4.3%, largely, of course, because of increases in retail trade around Christmas. Generally, however, the summer months suffer lower unemployment rates than the winter months. Seasonal fluctuations such as these are common throughout the state of Maine, if more exaggerated in smaller, isolated communities that are more heavily dependent on fishing. Stonington's unemployment rate, for example, fluctuates between a low of 3.1 percent in August to a high of 10.5 percent in February. Portland's economy, by comparison, is much more stable seasonally.

Table 6 shows the distribution of jobs by industrial sector in Portland.

**Table 6: Non-Agricultural Wage and Salary Employment,
Portland MSA, 1993**

Industrial Sector	Number Employed	Percent of Total
Manufacturing	13,330	10.5
Construction	5,110	4.0
Transport/Utilities	5,940	4.7
Wholesale Trade	8,660	6.8
Retail Trade	28,470	22.5
F.I.R.E.	12,260	9.7
Services	36,560	28.9
Government	16,390	12.9
Total	126,720	100

These distributions indicate an economy with a strong (but no longer central) manufacturing base and a growing service sector, reflecting national economic restructuring trends. Average wages in the Portland MSA are around \$10.00/hour, or around half of what crew on groundfishing vessels can make (or were used to making prior to the current crisis), and as little

as a fifth of what captains were making. Median family incomes in the city were \$25,600 in 1983 and \$38,511 in 1990, or an increase of 6.5 percent, indicating a relatively robust economy.

Commercial fishing, of course, is but one of several industries and cannot be said to be the leading industry in the city, although the port itself occupies a central place in the city's economy and its quality of life. Two waterfront surveys compiled by the Council of Governments in Portland reported that during the recession of the late 1980s and early 1990s, Portland's waterfront businesses expanded and hired more employees, indicating

the port's overall importance in the city's economic health (Portland Council of Governments 1992a, 1992b). The MGF is no small part of the port's profile and character, for "good fishing harvests" were mentioned by the Council as primary in keeping waterfront businesses active during these years of economic downturn.

Casco Bay is a deep water port, extremely sheltered and located only three and one half miles from open ocean. Through the year it remains free of ice, which makes for easy navigation not only for the commercial fishing fleet but also for growing marine traffic related to imports, transportation, and recreation. Much of the development of the harbor in the past ten years has been the growth of condominiums and other real estate development that often competes with commercial fishing for space and aesthetics. Despite these changes, commercial fishing in Portland remains a core industrial segment, important in the city's identity and history. Indeed, those responsible for monitoring waterfront development see non-marine related uses of space along the waterfront as directly tied to marine related uses in positive ways:

"Land owners are clearly a small number of the actual 'firms' which are located on the waterfront, yet they have some specific concerns about the amount of underutilized space along the waterfront. There continues to be a strong call for reviewing the current zoning restrictions from such owners and from some of the renters. Some renters have suggested that the waterfront users could be paying less in rent if the buildings were occupied more fully. In other words, nonmarine related uses could subsidize marine related uses."

--Portland Council of Governments 1991a

Official publications of Portland's city government often highlight the central role of commercial fishing, and clearly the Portland Fish Exchange is among the city's proud accomplishments, being unique in the Northeast* and attracting the attention of seafood dealers and brokers in ports such as Gloucester and New Bedford.

* Note by Clay: The Portland exchange has been unique in being a display auction. Other Northeast display auctions are being planned, however.

A2. The Portland Fish Exchange and Other Port Infrastructure

At the heart of the Portland MGF stands the Portland Fish Exchange (PFE), a display auction founded in 1987 on the Portland waterfront. The auction has acquired a reputation for fairness and accuracy of weighing in a region long known for difficulties between seafood dealers and fishers. Some fishers we interviewed while landing fish in Portland had recently moved from selling their fish in Boston and New York markets, saying that those markets were far too prone to rounding weights downward, arguing over quality and other characteristics of the catch, and sometimes taking days or weeks to pay for fish. The Portland Exchange, by contrast, provides a setting where fishers or their representatives (brokers) come together with buyers, every Sunday through Thursday noon, to bid on various lots of fish.

One fisher we interviewed summarized the auction's impact on the groundfishing fleet by saying:

"What it's [the auction] done, it's taken away not the small fish dealer, but we always called them in the business the 'little black hole.' You load your stuff in the basket and it goes up the hoist and into the warehouse or the dealer's house on the scale to get weighed. And then the basket comes back down empty. We always called it the little black hole. And then the guy said, 'Here's what you had, here's your money.' And you're kind of going, 'Geez. I thought I had more than that.' It builds some trust, but what ends up happening is you end up guiding your product—you have to stand on top of the wharf and be sure these guys are doing right.

"But you go to the Fish Exchange, there's no question; everything is weighed on a computerized scale. Everything is tagged, and they off-load the boat for you, so if you want to stand up and watch them. It's all sorted, everything is sorted and tagged and weighed. And it goes on that floor that way, with your tag on it. So you as a buyer would say, 'Yeah, I'm gonna buy from The Mary Ellis,' or whatever the boat name is, if he's bought before and it's a good product. And might pay an extra 25cents if they have to. And that's how it all works, but you get a computer print-out of what goes in, and you get a computer print-out of where it went and how much it brought and the Fish Exchange pays you. You don't have to deal with Joe Schmoie the fish dealer or the guy buying. You pay them two cents a pound to put it on the auction; the buyer pays two cents to get it off, and that's how they make their money—on that four cents or six cents or whatever. And they handle the money, so there's no question of whether that black hole was gonna give you a check or not."

Another fisher we interviewed suggested that the auction's reputation for accuracy has been responsible for fewer disputes between fishers and buyers that have led to marketing boycotts or protests over what seemed to fishers to be price-fixing:

"We had a few minor tie-ups because the price wasn't any good; those didn't last very long. Well, the dealer will come down and talk about it, and then they settled it, and then we'd go out. That was years ago when it used to work that way. And now with the auction, it doesn't work that way. This auction has been the best thing that ever happened to us. We used to give--if we caught a hundred pounds of fish, we got paid for 100, but there was 112 or so in the box. Now we auction, and there's about 112 in there."

Typically, fish are landed at the auction early in the morning, between four and six, separated and weighed, and auctioned off at noon. During the shrimp season, shrimp auctions also take place in the evening.

The Exchange employs between 35 and 55 individuals, fluctuating through the year based on weather conditions and the availability of groundfish. With the exception of shrimp, most of the species they land are groundfish species. The Exchange also assembles daily price reports and lists of species landed by vessel, pounds, sizes, and other information, serving as an excellent data source for National Marine Fisheries Service's efforts to monitor the conditions of the resource on a daily, weekly, or annual basis* (see Table 7).

Table 7: Species, Pounds, and Percentage of Total Landings of Major Fish Landed at the Portland Fish Exchange, 1994

Groundfish Species, 1994	Pounds	% of Total Landings
Cod	6,030,605	21%
Dabs	5,340,312	19%
Hake	4,463,607	16%
Monkfish	2,844,204	10%
Pollock	2,447,281	9%
Grey Sole	2,653,791	9%
Cusk	1,278,315	4%
Redfish	309,972	1%
Yellowtails	102,424	<1%
Other	3,138,487	11%

Source: Portland Fish Exchange

*Note by Clay: The NMFS does, in fact, receive these and other dealer reports daily, and uses them in its analyses.

The Exchange is the center of the northern shore of Casco Bay, sitting among several seafood brokering establishments and the Marine Trade Center, a building that is conspicuously businesslike in appearance, reflecting the self-professed entrepreneurial spirit of the Portland fleet. In an interview with a group consisting of a fisher's wife, a well-known broker and boat owner, and a past political appointee within the state's marine political apparatus, the point was made that, after Amendment 5 was passed and fishers in Gloucester and New Bedford began burning boats and turning over cars, journalists came to Portland believing they were not negatively impacted by the regulations, because they were not destroying property. Their response to the journalists was as reasoned as their response to Amendment 5: they said that they were businessmen and they were responding like businessmen. Simply, they challenged the new regulations in a court of law.

The square brick structure with bold silver letters that read Marine Trade Center symbolizes this stoic and stubborn resistance to what the fishers of Portland consider

onerous regulations. The Center houses the National Marine Fisheries Service offices, the Maine Department of Labor's Fishing Family Assistance Center, Maine Fishermen's Wives Association, and several other marine related businesses or assistance organizations. Dock space along the waterfront, like most heavily commercialized ports, is at a premium. The city of Portland rents space to 22 boats and maintains a transient pier where boats may tie up for three days at a time; this is 100' long and boats can tie up three deep, similar to the vessel stacking in New Bedford. They will have eight more slips in May of 1996, and rarely does a permanent slip tenant relinquish his right to harbor space. This indication of a high demand for slip space is another indication of the tenacity of the Portland fleet and its resilience in the face of proposed restrictions and probable economic declines.

In addition to the complex that includes the Fish Exchange, seafood dealers, and the Marine Trade Center, the active space of commerce between Commercial Boulevard and the waterfront, as well as the waterfront across the bay, includes several seafood dealers, gear manufacturers, and other businesses that service the fleet and its personnel in a variety of capacities. Several small eating and drinking establishments depend heavily on ground fishers, both as patrons and suppliers of the raw materials for their seafood chowders and fresh fish steaks.

A3. Demographic Information on the MGF

According to Maine Department of Marine Resources licensing data, the opening of the Exchange was followed by an increase in commercial fishing licenses for the first five years of its operation. Between 1986 and 1991, licenses increased from 1132 to 2048, dropping back to 1493 in 1994. From field research on the 1995 license list, however, we know that many fishers who hold licenses do not fish for groundfish; some purchase and retain licenses either for tax purposes or in the hopes that they will become desirable as commodities under limited entry programs or future moratoria.

That growth in commercial fishing occurred in Portland following the founding of the PFE is further supported by the waterfront surveys mentioned earlier, conducted in 1992 and covering the years between 1989 and 1991. The survey found that water dependent uses of Portland's waterfront grew from 31% to 36% during these years.

Among the reasons for success of waterfront businesses were three that relate directly to commercial fishing (Portland Council of Governments 1991a: 8): "For the increases [in business activity, including hiring additional personnel], business responding to the survey were very articulate this year. The reasons given include:

1. a particularly large volume of lobsters and fish for the harvesters;
2. better prices for fish and lobsters; and
3. Portland Fish Exchange attracting large scale buyers.

A much better estimate of the numbers of ground fishers comes from data available at the PFE: their records indicate that they handle the catch of 384 clients. Of these, between 30 and 40 are brokers or seafood markets/organizations, between 80 and 90 are based in ports in and around the Portland area, and the remainder (around 250) are based in more distant ports. Those based in Portland are likely to be the larger vessels, with crews of a captain and three to four mates, as are most of the others, given declines in gillnetting and associated declines in smaller boats.

We can use these figures to estimate, roughly, the size of Portland's groundfishing fleet. A rough *lower* estimate of the number of families directly dependent on groundfishing in and around the Portland area could be derived by multiplying 80 to 90 vessels by 4, or the number of people who generally crew a vessel, with a result of between 320 and 360 families. Seafood firms in the Portland MSA report total employment levels of between 240 and 390, and another 110 to 150 workers occupy the sector of the economy known as boat building and repairing (Maine Department of Labor 1994: 141-42), bringing the total to between 700 and 900 families.

This is, of course, a low estimate, and an upper estimate would include all but between 5 and 10 of the 344 who are not obviously seafood dealers or companies. At this end of the range, we derive figures of between 1,670 and 1,880 families. Thus, those directly involved in Portland the groundfishing industry number from between 700 to 1,900 individuals. The actual numbers of individuals who depend on groundfishing for part or all of their income, of course, are much higher, because these estimates do not include those who provide services besides building and repair services (e.g., ice, fuel), those who monitor the commercial fishing industry (e.g., Maine Department of Marine Resources personnel, NMFS Port Agents and workers, Harbor Masters), and those who provide a range of other services (e.g., banking, insurance, slip rental).

Based on salary data provided in the interviews with fishers and owners of fishing vessels, those directly involved in harvesting groundfish--captains and crew--contribute, in the aggregate, between \$12 million and \$70 million to the Portland economy annually. These

figures are based on fairly conservative income estimates, with crews of the larger vessels making around \$40,000 per year and captains making \$100,000 per year and captains of smaller vessels making between \$30,000 to \$50,000 per year.

To protect incomes of this size, and to preserve the groundfishing heritage of Portland, ground fishers have not accepted regulatory changes quietly. In addition to marshaling legal actions in response to recent fishery regulations, ground fishers and other fishers in Maine have formed several organizations, many of which are organized, staffed, and operated primarily by fishers' wives.

A4. Fishing Associations and Organizations

Because of different fishing territories and practices associated with each of the three groups of vessels (small, medium, and large), they have been differentially affected by regulations, incidents of environmental degradation and ecological change, and issues stemming from conflicts with conservationists, other types of commercial fishers (e.g., shrimpers and scallopers), and recreational and tourist interests (e.g., recreational fishers, whale-watching groups). Reflecting these differences, the groups are represented by different fishing organizations: larger vessels are represented by the Groundfishing Group of the Associated Fisheries of Maine; mid-sized vessels are represented by the Maine Fishermen's Cooperative Association; and smaller vessels are represented by the Maine Gillnetter's Association. The current spokespersons for these organizations live in South Berwick, Cundy's Harbor, and Stonington, respectively.

Not only are these different groups of ground fishers represented by different organizations, but interviews with representatives from each of the groups suggest that attitudinal differences between them, along with gear and space conflicts, have made forming a unified fishing association difficult. Small and medium-sized vessel owners, for example, often characterize the larger vessels as corporate entities, seeing them as less grounded in family ties and less bound to home mortgages than fishers who fish from smaller boats. Captains who use draggers view gillnets as more ecologically disruptive than draggers, stating that gillnets, too selective, remove species from the biomass unevenly and thereby create populations imbalances. Gillnetters, in turn, complain that draggers threaten spawning grounds and damage substrates.

These internal sources of conflict are somewhat more pronounced across the Northeast Region as a whole. Maine fishers from all three groups, nearly unanimously, point to fishers from New Bedford and Gloucester as being responsible for the problems caused by

overfishing; like commercial fishers nearly everywhere, however, they also claim that overfishing is only one of many causes of declines in cod and other stocks (particularly citing pollution and habitat destruction) and routinely disagree with scientists from NOAA and universities regarding the conditions of different stocks.

Interestingly, each group seems to believe the others are better prepared than fishers like themselves to deal with regulatory and ecological crises: the larger operators view the smaller as more flexible, while the smaller operators view the larger enterprises as having more capital to invest in gear modification and exploring alternative fishing strategies. Both groups point to investment capital as a problem, but from different perspectives: the larger vessel-owners say they have too much capital invested to stop fishing and the smaller vessel-owners say that gear modifications and alternative fishing strategies would require capital investments beyond their means.

Despite internal divisions, the Maine Fishermen's Wives Association represents all fishers and fishing families in the state, and the other groups come together from time to time around certain issues related to stock assessments and new regulations. In addition, several other public, private, and quasi-public organization act as informal and formal lobbyists for all Maine fishers and fishing families, ranging from the Island Institute in Rockland to the Maine Fisheries Commission to the Maine Sea Grant College Program. It is difficult to say, however, that any agency, organization, association, or group speaks for all fishers in Maine all of the time, yet at least once per year they are able to come together in the Maine Fishermen's Forum.

A5. Social Dimensions of Portland's MGF

Like fishers throughout much of the United States, many of those we interviewed in Portland either descend from long time fishing families or have worked in fishing or fishing-related work since they were in their teens. Interviewing a father-son team of ground fishers, for example, elicited the following statement in response to our inquiries about how they got into fishing:

"Well, my father fished and my aunt fished and my sons fish, and my brothers fish, my uncle fished, my cousins fished--the whole family fished--because there wasn't a very wide selection when they came to the country in 1920. It was either work in the mills--which Portland didn't have any but very few--or longshoremen. And this wasn't a real good farm area, so we took to fishing."

Commonly, fishers took up fishing practices primarily because, compared to other occupations, fishing paid relatively well and required no extensive education beyond the day-to-day apprenticeship of fishing. Those born into fishing households typically grew up around boats and fishing and learned the industry at a young age, although some fishers claimed that their children either loved or hated fishing, and simply being born into a fishing household does not seal one's fate into a life of fishing. This is especially true today, with the negative publicity surrounding the future of fishing, particularly groundfishing. Despite the pleas of some fishers, who now desperately need crew who are willing to stay with fishing for years to come, fishing households are having trouble reproducing themselves. A thoughtful account of the difficulties captains have recruiting crew links crew recruitment problems to credit and capital development issues as well:

Interviewer: *"Is it tough to find good crew?"*

Fisher: *"Yeah, now it is; it's getting hard because young people aren't interested in getting into it because of all the publicity and all the rules. So I can't say as I blame them, it's hard work. The guys get paid pretty well out of it."*

Interviewer: *"And they earn their money."*

Fisher: *"Oh yeah. But a lot of people don't want to be going away from home. If you're gone for four or five days, and then they're in for two or three, and then they're gone again. Like the bigger boats are gone for 10 days or 12 days, and then they are in for 4, and then they're gone again. Especially if you're married and got kids, it's not much of a life. I can't say as I blame them, but it's, you know, it's not the opportunity there for the young person to come and say, 'I'd like to go fishing with you and learn the business.' I've taken guys. You can tell right away if they're gonna' be any good or not. And I've had a couple of them that I had to advise that, 'You'd be better off going back and working on shore. You're never gonna make it.'"*

Interviewer: *"Why is that?"*

Fisher: *"Oh, they don't have any idea in the world what they're doing out there; they really don't. They're lost. And then you'll get some guy that comes along and think, 'This guy's gonna' be good.' And you keep him and after a while, he knows this and he knows that, and then you can teach them, but it just takes experience to learn where to go to catch the fish, and how to tow along the bottom and do this*

and do that. There's an opportunity there for people, but the government didn't leave many windows for these young people to save their money and buy a boat and start like I did. You know, I started with a lobster boat, then I went to a bigger lobster boat, then I bought another small dragger, then I worked on big draggers and saved my money. And then I bought another dragger that was a little bit bigger."

Within the Portland fishing community, it is not uncommon for fishers born into fishing families or those who eventually become crew to try out nonfishing jobs during their younger years, usually in and around the water. This would include operating ferries, building or maintaining boats, or performing other shore side tasks. A few fishers we interviewed, especially those operating smaller vessels, moved between fishing and shore-based employment on and off over the course of their professional careers; we may think of this as yet another extension of moving between fisheries through the course of several seasons or from year to year, adapting vessels, modifying gears, and targeting different species based on stocks, regulations, and crowding problems. We will discuss methods of adapting to crises in more detail below.

In the process of moving between shore, water-related occupations and fishing, either as crew or as part-time fishers/captains themselves, fishers gradually gain the trust of the established fishing community and slowly become accepted into its ranks. Because there is a history of regulatory pressure, persistent perceptions that the fishing way of life is being criminalized, untrustworthy marketing relationships, and the necessities of interdependence between captains and crew at sea, developing trusting relationships is a slow and often painstaking process that permeates the fishing community. By the same token, the difficulties of forming long-term and trusting relationships make those that have been formed all the more important as components of the overall social infrastructure of groundfishing.

Considered as part of the economic health of groundfishing, working in and around the water, moving between fishing and shore-based employment, and occupying different positions on different kinds of fishing vessels has been important to the ways in which the social capital of groundfishing develops and becomes available for investment in a productive fishing enterprise. By social capital we refer to those network relationships--between captains and crew, captains and suppliers, among crew or among captains, and between captains, owners, and creditors, and so forth--that enable partnerships designed to generate incomes. In fishing, the development of fishing skills and knowledge about fishing grounds, the willingness to adhere to captains' safety standards, the ability to remain at sea for extended periods, etc. are all attributes we normally consider human capital. Yet human capital in fishing is useless without the weblike partnerships that link

fishing vessels to credit systems for financing, fuel, ice, trip food, etc.--without, that is, social capital, and the trust upon which the mobilization and investment of social capital depend. Comments from one of our respondents show how extensively entrenched are relationships based on trust and credit and how they may be negatively impacted by negative publicity about the fishery:

"Well, you have to see ramifications of this whole publicity thing. Like I've had an account with Shaw Supermarket, a charge account, for a long time. And when I got the second boat, I called them up and I asked them for another charge account for the other boat, and they wouldn't give me one. I said, 'Why?' and they said they were phasing out their fishing boats because their credit and liability wasn't too good. I says, 'Have I ever missed a payment?,' and they said, 'No, your credit's very good.' As a matter of fact, they asked me to stop paying like I was paying, wanted me to go on paying them every 30 days. Basically what I do is when a boat comes in and I do a settlement sheet and I pay them and then I get all the bills and I pay all the bills and I put it in the mail and send it to them. So if I had a bill from Shaw's for \$257, I sent them a check for \$257 with the account number on it. Well, they didn't want me to do that anymore. They wanted me to wait til they sent me a statement and then pay the statement, because it was confusing the bookkeepers, I guess. But they wouldn't give me another charge account, because they felt the fishing industry was going down. There are a few places like that. A year ago I put a new winch engine into one boat, and I really had to get a great recommendation from the Caterpillar Company to the guy who would come down and wrap the exhaust pipe with insulation, because he said, 'I've been stiffed by fishermen. I don't even want to touch you guys.'"

If credit relations in the fishing industry are enhanced by trust, so too are they particularly susceptible to pieces of information that chip away at that trust. This occurs, moreover, within an industry whose participants have been prone to considering attacks on their ways of life as stemming from a conspiracy of environmentalists, government personnel, and recreational fishing and tourist interests. While these sentiments are widespread throughout the fishing industry of the United States (see Fritchey 1993), the ways fishers act on them, responding to what they perceive as crises and to very real restrictions of their fishing activity, vary from port to port.

A6. Adaptations and Adjustments to Crisis

Maine fishers and fishing families are adjusting to negative publicity in fairly predictable ways, based on their past adaptive responses to various political, economic, and ecological

crises: specifically, they respond with a combinations of experimenting with alternative survival strategies, protest, and resistance. Maine fishers consider themselves innovative and entrepreneurial, as noted above in the discussion of the Marine Trade Center and the measured response to Amendment # 5, and their responses to new fishing regulations have been fashioned along typical business lines, including challenging the state on legal grounds and investing time and income in alternative uses for their vessels.

Like fishers in the Gulf States and up and down the eastern seaboard, Maine fishers perceive their way of life being criminalized, largely unjustly, due to either environmentalists' interests or to fisheries biologists who regulate fishing based on inaccurate data. Holding such viewpoints, they consider regulations with suspicion and often view them as illegitimate or even morally reprehensible. This justifies, in their own minds, protest and resistance by legal and illegal means.

At the same time, Maine fishers adjust to crises--whether politically instigated or not--by experimenting with options within and outside of fishing. Within fishing, this involves moving into new, similar fisheries with the same gears, making modifications to gears and vessels for compliance purposes (or sometimes to circumvent regulations), making modifications to enter qualitatively different fisheries (moving from net-based fisheries to trap-based fisheries, for example), or exploring new fishing territories. When switching from fishing to shore-based employment, many fishers remain tied to the industry in an altered capacity, engaging in work in seafood establishments, vessel repair operations, and so forth. Consider the comments of a long-time crew member who, in the current climate, has had little difficulty finding work because labor recruiting pools for crew have deteriorated in the wake of negative publicity about the groundfishing stocks and the industry's future:

"Last year I groundfished the entire year; I was on a different boat than I'm on now. And I swap around; I go where I want to go. That's one of the appeals of this business, particularly at my level of it. I've run boats; I've been shore engineer--that was the third thing that I did when I quit actually fishing--was maintain boats for the outfit that I'm working for now. When boats came in, I took care of any problems that they had. I knew the boats around the harbor, take out fish and so forth, and fuel them and ice them, and get them ready to go out again so that the gangs could go home.

Because of the economic importance of lobster in Maine, one of the most devastating potential problems to emerge in the wake of a deteriorating groundfish industry is the movement of smaller vessels into lobstering and the practice of larger vessels illegally

[dragging for lobster](#). While it is illegal in the state of Maine for ground fishers to land lobster they have caught with nets, fishers in the southern portion of the state can relatively easily travel to Boston markets to sell lobster they have captured in their nets and we can expect such practices to increase under more restrictive fishing regulations.

A7. Conclusions

Maine fishers are adapting to new developments in fishing regulations in ways that are in line with their historical participation in the fisheries: by resisting regulations through legal and illegal means while experimenting with new gears, new species, and new on-shore economic opportunities. The concentration of the fleet around the PFE has meant that those fishers based in and around Portland are likely to be more heavily impacted by further groundfishing restrictions than those in other, smaller ports, where lobster fishing prevails. Although the Greater Portland economy has a broad and diverse base, ground fisher in this area will be unlikely to find comparable work with comparable incomes outside groundfishing; in addition, of course, they face the loss of large investments in fishing vessels and gears with the collapse of the industry.

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B1. Overview of Gloucester Groundfishing

Founded in 1623, Gloucester has been a fishing port for the last 372 years (Vickers 1995). The Dorchester Company settled on Cape Ann and established the Massachusetts Bay Colony here in 1623. Prior to that time, vessels came to Cape Ann to fish in the summer months and returned to England with their salted cod before winter. Staging to dry codfish in the sun was set up in what is presently known as Stage Fort Park. Dried cod was a major export for centuries. Groundfishing is still the dominant fishing activity, and is pursued with gillnets, longlines, and dragging gear. Inshore lobstering is of lesser importance, but landings of lobster as secondary product have increased among the dragging fleet.

Table 8: Reported Vessel Activity by Gear Type and Target Species of 75 MGF Respondents

Gear Type	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dragging	33	34	35	35	35	32	31	31	30	32	33	34
Lobster dragging	7	7	4	4	5	5	4	4	7	8	9	8
Lobster trapping	8	6	6	10	10	11	11	12	12	13	12	12
Gillnets	4	4	6	8	11	11	10	8	9	10	8	8
Long line	8	8	9	15	12	16	16	14	13	13	9	5
Other trap					1	1	1	1	1			
Party boat			1	1	1	1	1	1	1	1	1	
Electric rod				3	4	4	4	5	5	3	2	2
Scottish seining	2	2	2	2	2	2	2	2	2	2	2	2
Diving				1	1	2	2	2	2	1		
Other			1	1	1	1	1	1	1	1	1	
Target Species												
Groundfish	35	37	43	51	52	46	41	41	42	42	39	34
Herring	8	8	8	9	11	15	17	16	16	14	13	12
Mackerel	7	5	6	8	12	12	8	9	10	11	8	6
Dogfish	6	5	6	8	14	25	26	25	21	11	7	6
Whiting	7	6	6	7	8	12	13	14	17	17	17	12
Ilex squid	4	3	3	3	5	5	6	7	7	5	5	3
Loligo squid	3	2	2	2	3	3	4	4	4	3	3	2
Sea Urchins	14	9	6	6	5	5	5	5	5	7	9	12
Hagfish	1	1	1	3	3	4	4	4	4	3	2	2
Shrimp	21	18	13	12	9	6	6	6	6	5	5	12
Butterfish	3	2	2	2	3	3	4	4	4	3	3	2
Monk fish				1	1	1	1	1	1	1	1	1
Tuna						1	2	2	2	2		
Blue fish					2	2	2	2	2			
Striper bass							1	1	1	1		
Scallop	1	1	1	1	1	1	1	1	1	1	1	1
Other	2	2	2	2	2	2	2	2	2	2	2	2

Source: GFWA 1995 Survey

Unlike the Maine fisheries, groundfishing is not summer oriented, but employs fishermen in a year round activity. Table 8 shows the reported/preferred fishing activity for 75 respondents (74 captains, 1 crew member) of a 1995 survey. This confirms the preference for groundfishing as a primary fishing strategy in Gloucester. The impact of new groundfish regulations will be more deeply felt in Gloucester than Maine due to a high level of capital invested in groundfishing and the large population of deckhands dependent on bottom dragging.

Most of the fish caught in the first 200 years was for export or regional consumption. When the railroad came to Gloucester in 1848, it opened the local fishing commerce to a wider national demand for fish. Boston and New York became major fish markets. The railroad also spurred tourism, and many hotels were constructed to fill the demand. People came to Gloucester for its fishing and to experience the natural beauty and cultural heritage of the port. This process of tourist development and gentrification has accelerated in recent decades. An important component of Gloucester's identity, enhancing its tourist industry, is America's oldest art colony--the Rocky Neck village within Gloucester. Scenery and architecture of the Cape Ann area have inspired generations of painters and sculptors.

Tourism, conversion to a bedroom community, and local high-tech industry have transformed historic Gloucester as it continues to diversify economically and culturally. Light industry accounts for thousands of new jobs in the area.

Gloucester's historical dependence on fishing is revealed in the art and architecture of the community, both religious and secular. Committing resources for the creation of occupationally specific art and architecture shows a deep community dependence on that occupation. Examples include Our Lady of Good Voyage Church, the Gloucester fisherman statue, and the entrance mural of St. Ann's Church. A recent event of significance is the dedication of the plans for the statue of the fisherman's wife. The commission for this community symbol went to a local artist, and a recent ceremony commemorated the commissioning of the statue, which should be completed in three to five years.

Fishing life symbols do not occur in isolation. They are integral parts of social rituals. Rituals are repetitive seasonal actions that reveal the most deeply felt values of families and households (Turner 1967). Rituals of saint worship, of the blessing of the fleet, and seafood festivals are integrated with the secular and religious symbols that are a part of the cultural landscape of the community. Symbols and associated rituals are also representative of persisting social arrangements. Such arrangements include working crews, family networks, social clubs, fisher-processor credit relationships, and fishing associations.

Although commercial fishing is still a primary industry (Gloucester was ranked second in 1995 in pounds landed on the eastern seaboard) light industry and the service sector are gaining in importance, and foreign imports have taken the place of domestic landings for some local processors. The community's largest fishery employer, Gorton's of Gloucester, processes and markets imported fish only and has not purchased a pound of locally caught fish in 30 years. This is because foreign labor and harvesting costs are lower, there are fewer restrictions and the supply is, therefore, more predictable. Most processors have looked to foreign suppliers to keep their businesses going. Their interests are not as linked to the fate of the local fishing fleet as in the past.

Besides experiencing a reduction in fishing fleet and supporting infrastructure of the past twenty years, the contemporary fishing industry of Gloucester has gone through many changes. These are

due to technological innovation, competition, and recent scarcity of certain fishing stocks along with increasing competition among a diversity of stakeholders (Poggie and Pollnac 1980; Hall-Arber 1994). Reductions in days at sea, closure of large areas, loss of the Grand Banks in the Hague Line decision* and decline in stocks have reduced the viability of the groundfishing fleet. Nevertheless, local fishing and related businesses still employ an estimated 40 percent of Gloucester's population. Businesses that support the local industry are small, locally owned and operated. Estimates made on the impact of regulations for Amendment # 7 to the Northeast Multispecies plan will eliminate more than 50 percent of these locally based businesses (NMFS socioeconomic impact study 1994).

* Note by Clay: The Hague Line divides U.S. from Canadian waters in an area where the 200 mile EEZs of the two nations overlapped. The Line was created by a 1984 decision of the World Court in The Hague.

There are many occupational roles that support the local fishing industry. These include processing plant workers, lumpers, ice providers, truck drivers, electricians, boat operators/owners, deck hands, gear suppliers, lawyers, social service providers, welders, accountants, engineers, fuel suppliers, seafood processors, marine railway owner/operators, refrigeration service providers, surveyors, and charter boat owner/operators.

The commercial fishing fleet is divided into four major gear groups. These are mobile gear (dragners) and three categories of fixed gear (gillnets, longlines, and lobster pots). Other types of commercial fishing include jigging, harpooning, diving for sea urchins, and various types of trapping. Salmon aquaculture is being considered by one processor, but has been held up for five years because of regulatory and financial barriers. Other uses of marine resources include recreational and sportfishing, and seasonal whale watching tours. Groundfishing with mobile gear remains the predominant fishing strategy in Gloucester.

The traditional fishing fleet of Gloucester have been ground trawlers, using stern or -- rarely -- side trawling techniques. As in Maine, Gloucester's groundfishing fleet has three principal components:

- 1.** Vessels over 70' in length that fish from 7 to 10 days at a time. These vessels fish the Gulf of Maine south in deeper waters primarily with otter trawls and occasionally offshore gillnets. Traditional crews of 10 to 12 have been reduced to 4 or 5 individuals. As of 1994, the city of Gloucester had registered 34 fishing vessels over 70'. However, only 25 of these are offshore vessels, and the other 9 are too old to fish offshore and are restricted to work as medium or day boats.
- 2.** Vessels ranging from 50' to 69' (called medium sized vessels). Crews of two to three individuals fish with dragging gear from 3 to 5 days in nearshore waters. As of 1994 there were 50 of these vessels.
- 3.** There are also 236 fishing vessels up to 49'. These vessels are considered day boats, and fish with

gillnets, longlines or otter trawls. Crews consist of one to two individuals.

Most of the fleet land their fish in Gloucester, although larger vessels may land squid and other species in Portland or Rhode Island. There has been a significant decline in landings due to restrictions on days at sea and area closures. Vessels of all sizes have been affected, although the larger vessels are having the most difficulty. An informal survey of Massachusetts ports reveals that over the past two years, more than 30 vessels (scallopers and/or draggers) have left the fishery altogether, have moved to a different region/country, are waiting to be scrapped, or are too expensive to re-outfit (Collins 1995). In New Bedford, a total of 83 vessels have dropped out of the fleet over the last five years (New Bedford Seafood Coalition 1996).

B2. Port Infrastructure and Marketing

The fleet here is highly concentrated inside an extremely sheltered harbor, and affordable docking space is at a premium. With the introduction of ice plants in the late 1800s, iced fish could be marketed throughout the eastern seaboard, establishing Gloucester as one of the primary seafood ports in the nation. The existing processing and cold storage facilities have a combined capacity of nearly 95 million pounds. Replacement of this infrastructure would be prohibitively expensive if the fishery were allowed to collapse. The modern state dock, built in 1982, was recently renovated with funds from the Economic Development Administration. There are deep draft berths for 64 commercial vessels at the state fish pier. However, the high docking fees and insurance requirements have kept most commercial vessels off this dock. Scattered among the working vessels are charter boat facilities and whale watching firms that have been taking over spaces vacated by a dwindling groundfish fleet. Space limitations mean most of the vessels must have some arrangement with a processing facility or dealer in order to tie up their vessels.

Docking arrangements with facilities such as the historic Gloucester Marine Railways have changed over time with escalating industry costs. Some of the processing facilities have only a few spaces, others have upwards of twelve, and others may have more. The lobster fleet pales compared to the groundfish fleet, however, unlike the Maine ports, where the opposite is true. Large dockside corporate firms, along with some Japanese capital investment are mixed with smaller seafood buyers and processors, boat docks, and ice, fuel, and oil suppliers.

Major infrastructure components of the Port of Gloucester include the following:

A) fish marketing/processing

1. Star fisheries (local, imports)
2. Gorton's of Gloucester (imports only)
3. Americold (local)
4. Fuji USA Investments

5. Ogawa USA, Inc.
6. John B. Wright Seafood, (local)
7. National Fish (fish broker)
8. S. Parisi & Son Seafoods, Inc. (local)
9. Mortillaro Seafood and Lobsters
10. Al King and Sons Lobster company (East Gloucester)
11. Steve Conolly Co. (local)
12. Captain Joe & Sons, Inc. (local)
13. FBI Fisheries (local)
14. Good Harbor Fillets (local)

B) Fishing supply/repair

1. Cape Pond Ice Company, (ice products)
2. Gloucester Marine Railways, drydock repair
3. Ship Lantern Supply (buys local fish, and sells safety equipment)
4. Roses Oil- drydock repair, sells fuel, oil and gear.

The greater dependence on groundfishing in Gloucester as compared to Maine ports also means a greater potential for economic dislocation from a crisis. Overall, support infrastructure is at a premium, and there is little that could be lost without this having a major impact on the ability of the present fleet to operate.

The decline in the fish processing capacity has not yet included transition into alternate shoreside activities, although a herring processing operation and a fish exchange are planned. As one support factory owner points out:

Today, international demand for seafood from Gloucester sends landings worldwide. According to one local observer:

"You have companies from all over New England that are servicing Gloucester. Trucks are delivering to New York and other fish markets, directly to wholesalers, directly to restaurants. In other cases you have people that are catching bluefin tuna that are heading and gutting the carcass, boxing it in a wooden coffin, packing it in good Gloucester ice, and shipping it to the Tokyo Fish Exchange. We've seen a tremendous growth with slime eels in Gloucester now, and the sea urchin business—there are at least a half dozen businesses now employing hundreds of people to pick. The low-wage labor coming from out of Gloucester now, the new immigrant work forces—Cambodians or whoever coming from Chelsea and Lowell and other places—coming in by van and processing sea urchins to export to Korea and Japan".

"There have been a number of steps that have been adverse for the Gloucester community. When the Dehide (fish dehydration plant) was closed down and then not replaced, that was in 1984 and that was something that the people had never conceived of as being a long-term scenario. They thought there was gonna be a replacement coming into place, that people would be processing fish waste economically in some form or another. And that hasn't happened now for 12 years. There's been small-scale solutions with bait and with hydraulasafe fertilizers from by-products and things. But there's no market for the volume pelagic waste."

Despite the internationalization of the market, there has been a steady decline in local processing and marketing capacity. The fish dehydration plant employed hundreds of workers for decades until it was closed in 1984. There are presently a dozen local buyers, including five processors. This is in contrast with dozens of buyers in Gloucester before the passage of the Magnuson Act. A great deal of ambivalence exists about the consequences of recent changes in the size of the fleet and seafood dealers' attempts to hang onto old markets or explore new marketing options.

The history of fish marketing has been characterized by an unbalanced economic relationship that favors the buyers. Taking advantage of fishermen is not uncommon, yet recently the balance has shifted from dealers to favor fishermen to a greater degree, largely because of the increased competition for the dwindling fleet of suppliers. As the number of markets decline, the options available to the remaining suppliers also becomes more uncertain as there is a decrease in the flexibility of the market due to reduced competition for product. However, even though there are few markets, the fleet of large draggers in Gloucester is so reduced as to *increase* competition among dealers for the remaining fishers.

Fish are generally sold whole frozen and shipped to secondary markets where they will be processed to their consumer form. It is ironic that Gorton's Seafood of Gloucester exclusively processes foreign Quick Frozen Product (QFP) in lieu of local fish. There has been added strain at Gorton's with locals as they have upgraded their processing systems and eliminated laborers by automation and by raising the minimum educational requirement for hiring to the GED level. Housewives and other ethnic workers with limited education and poor English skills, formerly able to find jobs in fish processing, have lost their jobs.

Today, higher fish prices mean that processor/marketers don't need to run as much fish through their facilities to remain viable. This does not help the suppliers (fishers), who are competing for a scarcer product and increasing costs. Thus there are both negative and positive consequences of a shrinking fleet, fewer overall pounds of fish, and increased ex-vessel prices; this results from a marketing system that has, historically, incorporated uneven power relations between fishers and dealers into its operation. In an earlier study of the New England fresh fish market, Wilson (1980) found that the situation surrounding individual transactions between fishers and marketers was not based on free competition for fair prices. Instead, the system was relatively inaccurate, slow and unequal in the distribution of information about market conditions to buyers and sellers, resulting in a high degree of uncertainty surrounding any particular transaction.

Another problem was the private ownership of facilities for off loading boats effectively precluded the existence of spot markets with many buyers and sellers. These arrangements were traditionally mitigated by the establishment of implicit contractual arrangements. For example, in Gloucester, fishermen would be given credit for the purchase of fuel and ice with the implication that they would sell their catch through certain buyers, and that the debt accrued would be payed back with the catch:

"It's fairly simple. The boat is extended credit typically, unless he's lost his credit. But the boat pulls up, he takes on ice, and the concept is it's the same as the fuel, the groceries to feed the crew--that when he comes in, that comes off the top of the trip as an expense of the trip that is paid, and then what's left over goes to the crew and to the owner and the skipper"

--Ice Plant Operator

Debt relationships extended to the wider community to include bank loans for boats and second mortgages, food credit advanced at local grocery stores, and delayed payment on supplies and services from gear and repair shops servicing the industry. Traditional market arrangements were further mitigated by being relatively long-term bilateral exchanges.

Wilson (1980) reported that more successful cases who were parties to bilateral arrangements tended to experience better access to relevant market information, leading to more effective resource allocations. Bilateral credit relationships have almost universally disappeared in the highly uncertain atmosphere of the fisheries today.

In the past, arrangements further tended to constrain potentially opportunistic acts by one party or the other. This did not provide for sufficient flexibility in the market place to favor suppliers. Wilson noted that what appeared to be highly significant about these relationships is that "their widespread use tends to reduce seriously the amount and quality of information generated by the market" (3:1980). One remedy to improve the equity of price and market information has come in the form of the fish auction based on the Portland model discussed above. Star Fisheries in Gloucester is seeking state funds to open a local fish market. They see this as an opportunity to add value to local product and expand the market share.

Quality fish at high prices should help local fishers get into new markets. Also, they anticipate creating many shore based jobs for displaced fishers (crew and owner-operators). Initially, 25 jobs are anticipated from the market, with predictions of up to 100 in early development to 300 in later development. Job qualification for the market fits the profile of displaced/retired fishers. Individuals are needed who have hands-on familiarity with fish, and who can also sort and grade fish for quality. Fishers can do this, without any significant retraining activities. Most would not have to speak English or have any other skills that they do not already have from working in the fishery.

A local fish auction in Gloucester would potentially compete with the market in Portland, which presently draws fishers from Gloucester and other ports outside of Maine. A smaller auction is in place in New Bedford, but does not have the draw that the Portland operation does. There, the large processing sector still dominates the flow of market product and information.

Similar to the relations that emerged between bankers and farmers in the Midwest following the 1980s farm crisis, credit relations between banks and fishers and between marine suppliers and fishers have deteriorated under the weight of negative publicity about groundfishing and Amendments # 5 and # 7. Traditionally, suppliers of marine services and trip supplies advanced captains oil, fuel, and ice, and captains could postpone paying repair costs on their boats until they had brought in a good catch.

Five years ago, fishers could also easily get loans and credit from banking institutions in town, and some linked their home mortgages to the boats when they purchased them, or when they made major repairs on the boats. A 1995 survey of 75 groundfishers in Gloucester reveals that 20 percent (15 out of 75) have their homes attached to a fishing vessel mortgage (GFWA). Today, it is virtually impossible to get a loan; fishers report that banking institutions are telling fishers that they are "getting out of the fishing business" and cannot risk investing in fishing.

As with the Portland case reported above, grocery stores also used to lend fishers money to go out, but this practice has stopped. Credit relationships with processors have disappeared with increasing economic pressure on the industry, creating subsidiary problems in the support sector. One supplier of fishing gear was stuck with orders that have been purchased but not paid for or picked up. He is waiting for back payment from some fishers, but they have not been able to fish because of regulatory or boat repair costs.

The Marine Railway (GMFR) is also charging dock fees, which was not done in the past. This has created bad feelings with long-standing customers. However, the ability to pay fees has put pressure on the owner to collect on old or delinquent bills. The GMFR can no longer extend credit to fishers (it is recuperating after a Chapter 8 Bankruptcy filing). The fuel, ice and other products sold by processors are more than the demand, thus there is competition among the processing sector for the business of an ever shrinking population of fishers who have an ever shrinking capability to repay.

Obviously, fish marketing in Gloucester is currently in transition. Old systems of debt, loyalty, and uneven power relationships between fishers and dealers have been eroding under the economic difficulties and negative publicity facing the fleet; yet new systems have not been developed to deal with new political economic realities. Any potential increase in ex-vessel prices for groundfish deriving from a shrinking fleet and reduced volumes of fish have been off-set by increased reliance on imports driving down prices and new markets for formerly underutilized species such as dogfish (key respondent). Combined, these factors have generated additional instability in a market long characterized by uncertainty and inaccurate information.

B3. Demographic Information on the MGF

Overall, there are 322 permitted vessels for groundfish alone in Gloucester. These vessels

employ 826 fishermen. The 826 fisher families include about 500 wives and 1,000 children. Average family size in the fishing industry is 5. This means that the total directly on fishing is approximately 5,630. Those in the support industry who are indirectly dependent on fishing include approximately 5,200 workers and businesses owners/operators and their families, for a total fishery dependent population of approximately 10,830. However, all of the residents of the Gloucester community benefit from the waterfront and traditional character of a community steeped in fishing history. Tourists and artists are attracted to Gloucester because it represents a working fishing port, not just another seashore community.

Many of the residents of Gloucester are descendants from Nova Scotia who came to Cape Ann in the last century. The traditional fishing peoples have included Canadian, Scottish, Yankee, Portuguese, with most of the present fishing population of Italian descent. A large number of these fishers have come from fishing ports in Sicily. They came over here "seeking a better life." Migration was based on social networks and kinship. Once a family was established with one or two individuals, others would be urged to join them.

Just under 40 percent of the 27,000 residents of Gloucester are Italian Americans, having arrived in two primary waves of immigration. The traditional fishing family structure consisted of extended kinship networks of fathers, brothers and cousins who worked together on druggers. While men were responsible for fishing and earning money, women took care of the household, onshore finances and child care. This arrangement provided a very satisfying lifestyle that has been severely strained by the fishing crisis. One respondent put it as follows:

"I think the perception of what regulations will do is driving them all crazy, because they're feeling it. Within the last two years, the changes have been such that you're seeing not only that movement--if they stay, wives out working, I mean, I've never seen this large a population now of wives working than in the 80s. For a wife and mother--that's all she's known, to have been in the home taking care of her family and her children--it makes a tremendous impact. Most of them--for some of them that have some education, well, the jobs that they're finding are a little better, so that their hours are more regulated. But there are still stresses, for the people that have menial tasks or menial jobs, because they're limited in education. Cleaning house, they're going through hell to make their schedule work, their children's schedule work. Within the last two years, the impact has been unbelievable."

Many women now work outside the home, and men who traditionally would spend most days outside the household at sea or on the docks find themselves spending more and more time at home. Limitations on days at sea, increasing operating, repair and insurance costs make this necessary.

Recent immigrants from Southeast Asia and Latin America are mostly employed as laborers in the processing of sea urchins. They commute from outside areas to work, and by not participating in social or religious organizations, they are not considered permanent residents.

Of the 28,000 residents in Gloucester in 1993, 15,800 residents were 16 years and over and working in the labor force. The rounded figures by category of employment are given in Table 9.

Table 9: Wage and Salary Employment, Gloucester MMP, 1993

Industrial Sector	Number Employed	Percent of Total
Managers/professionals	3,900	25%
Technicians/administrative	4,100	26%
Service occupations	2,100	13%
Fishing/forestry	400	2.5%
Precision products/crafts	1,900	12%
Operators/fabrication laborers	2,200	14%
Self-employed	1,200	7.5%
Total	15,800	100%

Source: Gloucester Chamber of Commerce

B4. Fishing Associations and Organizations

As in Portland, the fishing associations tend to form around gear types. Real and perceived gear conflicts have made it difficult for fishing organizations in Gloucester to cooperate with each other. The oldest fishing association in Gloucester is the Gloucester Fishermen's Wives Association (GFWA). It was founded in 1969 to promote the Gloucester and New England fishing industry as well as improve the quality of life of active and retired fishers and their families. Most members of the GFWA are associated with the offshore dragger fleet. The GFWA consists of 125 members representing both captains and crew members. Past and ongoing activities of the GFWA include:

lobbied for enactment of the Magnuson Fisheries Conservation and Management Act and for the recent re-authorization of the act;

worked with the Fishermen's Family Practice Assistance and Retraining Center to help fishers who elect to pursue other occupational roles or who are looking at ways to decrease their impact on particular fishery resources by diversifying their fishing related activities;

lobbied for the ban on oil drilling in the Georges Bank;

lobbied to establish the Stellwagen Bank Marine Sanctuary and continue to work with conservation organizations and government agencies to protect the sanctuary;

published a seafood cookbook, *A Taste of Gloucester*, that promotes underutilized fish species with the aim of taking pressure off traditional stocks (over 90,000 copies sold);

opposed ocean dumping of toxic wastes;

sponsored international exchange programs with fishing families; and

sponsored educational programs to promote lesser known fish for food consumption, develop a greater understanding of the local marine ecosystem, and connect schools with jobs through mentoring programs.

A significant recent activity of the GFWA has been the promotion of the Massachusetts Fishermen's Partnership (MFP). This partnership has as a primary purpose the forging of alliances between fishers of all gear and geographical sectors for the purpose of conserving and sustaining fishing communities and the marine resources they rely upon. An important issue currently being addressed by the partnership is the development of a comprehensive health care plan for fishers. Caritas Christi is a Catholic health organization that can develop a health care plan for fishers and their families. As noted in the MFP meeting minutes (4/26.96):

"Caritas Christi was approached last summer by Cardinal Law and Senator Kennedy's office to "fashion a brand new health plan" for the fishermen of Massachusetts. Kennedy secured an EDA grant to fund the project. David Bergeron, Jim Kendall and other MFP participants have already spent a considerable amount of time assisting in the development of a survey which is being conducted by Health Care for All. The survey was sent out in the spring and early summer of 1996 and responses provide information in four broad categories: (1) current health status, (2) present care providers, (3) how people pay now, (4) people's interests in the plan" (MFP 1996:2).

The survey, designed with fishing community input, was sent out to 934 individuals, with 485 surveys returned. The questionnaire was designed with a cultural understanding of Massachusetts fishers, their families and communities. Aggregated results of the survey are available and will be incorporated into a phase-II (SIA) study of the New England MGF.

The Gloucester Fisheries Commission was established in the 1950s to organize the fishing industry. It is the only municipal fisheries commission in the state, and advises the mayor and city council on measures for promotion and protection of the Gloucester fishing industry. Members of the commission include the Chamber of Commerce, the Fish Pier Advisory Board and four members at-large. Members are appointed by the Mayor and confirmed by the City Council.

The Cape Ann Vessel Association represented the larger mobile gear vessels in Gloucester until it broke up several years ago (David Bergeron, personal communication). The association, formerly including 68 vessels, leveraged an insurance program for members which provided an economic incentive to belong, but insurers were able to offer the program to non-members which removed this incentive. The association continues today with just a handful of vessels.

The Cape Ann Gillnetters Association represents most of the gillnetters in the community. The association represents 34 boats, with each boat averaging 2 to 3 crew. Of late, the primary concern of the organization has been fighting the area restrictions imposed under the newly authorized Marine Mammal Protection Act (MMPA).

The Gloucester Fisheries Association represents land-based operations in the fisheries. It includes dealers and processors.

The Gloucester Inshore Fisheries Association represents the inshore (small mesh) draggers. There are 10 small draggers operating as day boats, and they fish from March to November for whiting (silver hake). The rest of the year they otter trawl for shrimp using a fin-fish excluder device known as the Nordmore grate. These small scale fishers operate a coop on Fishermen's Wharf.

B5. Adaptations and Adjustments to Crisis

Among the important questions regarding the future of groundfishing in Gloucester and throughout New England is the extent to which the fleet is reproducing itself. Are fishers being replaced by their sons and nephews? Are they being displaced by new groups of immigrants based on alternative organizational structures? Is vertical integration within fisheries occurring, with the processing sector deploying its own fleets? These are questions concerning the future of the fleet and its ability to generate incomes that will be invested in Gloucester economy as they have in the past.

Unfortunately, we read in the youth of Gloucester a reluctance to enter the fishery. A key informant who taught high school in Gloucester for many years noted that, in 1974, a good 75 percent of those in biology classes had some ties to a fishing boat or the industry. Discussions of fishery biology and the industry were integrated into classroom lectures. In 1992-93 when he retired from classroom duty, virtually no students had ties (or admitted having ties) to the industry. Besides the decline in participation, there is now a certain shame factor associated with being in the fishery that can account for avoiding association with the industry by youth. This is due to a public perception in the media and at the managerial level that fishers have destroyed the resources (they are "fish killers"), and that it is no longer an economically (or socially) viable manner of making a living.

Another indicator of the downturn in the fishery economy is the loss of dockside and processing work for students. Ten years ago, students could get double shifts at local processing plants, and there are numerous cases of students financing their college educations with money made processing fish (e.g., the present mayor of Gloucester did this). Other students less skilled in the classroom might end up dropping out and taking a job as deckhands. They could earn a lot of money this way, but curtailed their education thus limiting future job mobility. Now, all students are encouraged to stay in school because there are no jobs available for them in the local community outside of minimum wage opportunities. This has also hurt families lacking the resources to send academically gifted sons and daughters to college. Such youth no longer have the opportunity to earn college funding through fish processing.

A local educator explains the loss of economic viability in the fishery:

"...when I first started to teach (1974) on Cape Ann it was not uncommon for students to pick up side jobs in on the wharf - literally putting themselves through college working on fish during the summer and after school. An awful lot also left school to work in the industry. It was an economic safety net. Now, those who did not return to school are hurting. Some of those kids really weren't going to get an education and would take deck hand job. But lots of people did get an education working in fish. The really good kids could go through UMASS working in fish - packing fish - working two shifts. This has been lost - is gone. Back in 1974, one of the most positive things I could say to a kid was you can get a job (in the fishery) anywhere in town. Now the entire economic network provided by fishing is missing."

Infrastructures related to fishing have also faced a severe decline in recent years: *"There has been a real decline in the businesses dependent on the fishing industry--a wide number of fishermen, boat suppliers, boats and other processors--those really dependent on the business of the fleet--are hurting (at least the ones that are still in business)."*

--Executive Director, Cape Ann Chamber of Commerce

Repair shops and equipment once regularly available now must be sought in New Bedford, Boston, or elsewhere. However, the Chamber of Commerce reports that, *overall*, the health of the business community in Gloucester outside the fishing sector is improving. This represents the shift from a primary economy dependent on fishing to a mixed economy of high tech, tourism, and light industry.

An important issue for management is the willingness of fishers to innovate in adapting to new regulations. As in Maine, where fishers have moved into shrimp, scallops, urchins, and other fisheries, attempts have been made in Gloucester to innovate and change in response to Amendment # 7 by shifting effort away from groundfish towards other underutilized midwater and bottom species. For example, some draggers converted their gear for herring fishing in the hope of making it in this new fishery. Herring stocks are very abundant, but the market is undeveloped and current herring fishers are uneasy about new entrants into a fishery they have long dominated. Nevertheless, Gloucester fishers have converted their vessels for herring at a cost of \$135,000. However, they were unsuccessful at marketing the catch and had to give up and absorb the loss. Fisher are also investigating other species which are either underutilized or have not been part of the traditional fisheries of Gloucester. For example, draggers are participating in a fishery for dogfish off of Cape May, and for squid off of Rhode Island. Others are increasing their fishing pressures on monkfish, whose livers are highly valued, and investing in fish traps to harvest eels. Pessimism runs high, however, that any innovations can work. As one key informant responded: "No innovations are seen as adequate to save the community from Amendment # 7."

A local resident comments on the decline in support business infrastructure: "We used to have clients of mine; they were engine-repair persons, who had a little company here in Gloucester, and they did extremely well and they provided good service to the industry. They are no longer in business; I mean, they're gone. I think you have to go to Fairhaven and New Bedford to get somebody to come to Gloucester to repair engines.

Interviewer:

And also the idea of parts and parts replacement. I mean...

Resident:

Nobody's inventorying parts. You have to send to the manufacturer. I had a vessel that had a foreign engine in it. It needed a head, and the head had to come from Germany. I'm not gonna say to you that I can make a judgment as to whether the cost was greater; I think the engine was not as good as American-made engines. But I can tell you that a longer period of time was lost because of the transportation problem.

Interviewer:

So in effect, another thing, not only the capacity or the response, I guess we'll call it the response capability of a fisherman at dockside when there's fish to be caught and the boat breaks down. That's a real issue when you have the lag time, and when there's lag time, people don't fish, they don't earn money?

Resident:

There is definitely today a greater lag time surrounding most everything that's done shoreside that originates by some necessity for the vessel. Even to buy gear and equipment, you have to run to New Bedford now; it's not readily available. Westerbeak used to be here, that was a pretty comprehensive ship's chandlery outfit, and they're not here anymore; they're in Boston, I understand. In New Bedford if you buy in quantity, you can get better deals down in New Bedford. Repair persons, there is a repairman here in Gloucester who lives here in Gloucester, and he works for New Bedford or Fairhaven or in that area in a company. But everything you really have to do, for the most part, other than routine things, you have to go out of town to obtain it."

Overall, the ability to shift to other species and gear is limited by the capital investment in the fishing operation. The larger vessels characterizing the Gloucester fleet are often saddled with debt, tied to home mortgages, and too specialized to rig with other gears without further debt. This ability is also limited by the financial ties of the crew to the vessel. A family (or families) that have their homes mortgaged to a vessel cannot easily abandon that vessel to pursue another option:

"Don't forget, you build a fishing vessels, most of these guys have pledged their lives in the form of a mortgage on their real estate, their life savings, all are sunk into that vessel. And when they come home a broker--You know what I mean by a broker? They don't make any money. When they don't make any money, or, in fact, lose money--those obligations continue. If you don't make your bank payments, and they have a lot of them that haven't been making their bank payments, then desperation sets in."

Despite these difficulties, willingness to adapt and innovate is seen in the Gloucester Herring Corporation. This corporation consists of a group of processors and nine vessels. They are preparing to process food quality herring for export in ice blocks. In order to break into the market, they would have to accept a price (\$.04/pound) below break even value (\$.06/pound). If they can create a demand for their product, the price should rise. The subsidy comes from a FIG grant*.

*Note by Clay: Fishing Industry Grants (FIG) were part of the post Amendment # 7 federal economic assistance package (\$30 million from the Dept. of Commerce) that also included the Fishing Family Assistance Centers.

Some lack of cooperation ensued in the start up. The processors proposed to let any vessel provide herring. This contradicted the original vessel owners' understandings, causing six of fifteen original owners to sever ties with the corporation. Only nine vessels are still participating in the program. Objections from the cooperating vessels have re-instituted the original accord. However, a key respondent estimated that to be successful a total of 20 vessels would need to participate. Because of the breakdown in communication, it is hard to get boats to commit to ventures. Increasing competition and a pervasive lack of trust make cooperation difficult.

In addition to adjusting to change within commercial fishing, the prospect exists for fishers to move into nonfishing occupations or marine related jobs either for short-term, casual employment during down turns in groundfishing or as a viable career alternative. Retraining centers established throughout the Northeast, administered by state Departments of Labor, have been operating on the assumption that adjustment to the current crisis would include job training.

One way to measure this commitment is to examine the impact of the retraining centers, and the outcomes of retraining efforts and perceptions of professionals staffing the family practice centers. The necessity and response to retraining is an indicator of the health of a fishery community, and reveals social and cultural characteristics, conditions, and problems of those seeking assistance.

With 95 enrolled, the retraining program has been as successful as possible in Gloucester due to strong leadership in the center and the pairing of center activities with the Gloucester Fishermen's Wives Association (GFWA), but the program suffers from several problems nevertheless. The GFWA is an organization with 26 years working experience with the fishing community (see B4). Despite the best efforts of the GFWA leadership in assisting the retraining process, there are still difficult problems to overcome. The major problem, of course, is that people do not want to give up fishing as a way of life, which does not compare to the job opportunities presented by the retraining centers.

The majority of fishers in Gloucester see little opportunity for them with retraining. Despite this, the center has enrolled 95 individuals in the program, of whom 14 have new jobs. Of the remainder, 31 have completed training, 24 are in school, and the others in process. Many of these have been fishers' wives. Despite this limited success, there are many problems identified by center administrators in the design of the program. Professionals from retraining centers in both Gloucester and on Cape Cod were interviewed on their experiences with retraining fishers and their family members. Fishers who came to retrain were faced with a variety of difficulties in coping with a change in lifestyle. Characteristics noted in counseling for retraining included:

Independent natures

Not able to work under another individual's direction

Difficulty in relating to support service personnel who come with a different worldview

Linguistic and cultural barriers to retraining

Infighting between fishing groups (gear types) hinders group cooperation

Older fishers fear age discrimination

Unfamiliarity with set (clocked) schedules within a workplace

Older fishers (40-45 years of age--averaging a fifth grade education) do not want to participate in retraining--they see this as a giving up--as losing face in front of their peers

In an interview with a training center director and counselor from Hyannis, Massachusetts, fishers were noted to communicate the following:

They are very angry with the government for their situations.

They may lack trust or confidence that the retraining centers will not negatively affect them like the government has done with the proposed Amendment # 7.

They are very frustrated and under stress from not being able to provide for their families as they had done on the past.

Older fishers express feeling that there is no hope for them getting a job and that they cannot be retrained for anything that fits their capabilities.

They express an unwillingness to work for \$8 to \$10 an hour when they could earn so much more fishing in a short period of time.

Other characteristics noted among fishers coming in for retraining are a desire to work outdoors, a great interest in their local environment, and putting to use their electrical and mechanical skills.

In general, fishers' wives are more likely to come through and get retraining than fishers themselves, often to give the household the means to maintain boats. Yet the overall feeling about the retraining centers are that the \$30 million provided as assistance to the fishing industry by the Department of Commerce has not been used well, that there needs to be a mentor capacity for those coming into the community, and that many of the organizations are not culturally sensitive to the community needs. Because of these factors, future training programs could use the help of NGOs who have worked closely with the communities.

B6. Fishing, Public Perceptions and the Management Process

Poor communication between fishers and outside observers is a critical issue for fishing communities in New England. This can vary depending on the degree of representation that is perceived in the council. Unfortunately, outsiders "can include those not fishing in the community, the public media, and fishery managers." The definition of individuals as community insiders versus outsiders has ramifications on the effectiveness of the management process. This is not improved by the underutilization of community social and cultural information in decision making. Earlier social-cultural studies and recommendations on the groundfish fishery (Poggie and Pollnac 1979) have had no significant impact on the management process, even though this research identified some of the same problems facing fishing communities and management almost twenty years later.

Defining managers as outsiders has arisen from the lack of input everyday fishermen appear to have in the decision making process. Fishers' associations prepared alternatives to specifics on the Amendment # 5, yet they claim that their input was ignored. Others claim that when issues/problems in the fishery are brought to the attention of managers, the information is often turned against fishers. A key respondents opinion is: *"Information is taken and solutions imposed instead of developing a dialogue where fishers can collaborate to find solutions that are more effective biologically and better for community participants."* These problems have led to a decline in participation in the public hearing process. There seem to be two basic concerns from the fishers' perspective (1) lack of effective communication between managers and fishing communities, and (2) the perception that when information is effectively communicated, it is invariably used in a manner that is detrimental to those communicating it.

This can be seen in the degree of participation in Amendment # 5 as opposed to Amendment # 7. A key respondent said that during the Amendment # 5 hearings, there was a great deal of active participation among fishing community members, including alternative plans that contained strong conservation recommendations. Yet, when Amendment # 7 was discussed and passed, virtually no one attended the public hearings. Given the severity of cuts in fishing days proposed in Amendment #7, this is surprising until one considers the perception among fishers that their inputs on Amendment # 5 had been virtually ignored. Why repeat a futile experience? They perceived that no modification or compromise on the part of management indicated their views were ever seriously considered.

These behaviors are interpreted in the popular media as further indications that the MFG is dead or dying, interpretations which have material consequences for those attempting to remain in the industry. Fishers reported that banks are "getting out of the fishing business," not only refusing to extend new loans but calling in loans on fishers' homes regardless of their past standing. Recall the similar comments of a Portland fisher, quoted above, whose traditional supermarket would not extend credit to another vessel.

B7. Understanding Community Dependence on Fishing

We have noted in several places in this report that dependence on groundfishing in Gloucester, as well as other ports, has both material and symbolic dimensions. Cultural and social distinctions divide fishing families from the rest of the community, making the fishing community to some extent insular. Ethnically, most ground fishers are Sicilian/Italian, and there remain strong connections with Italian communities of origin. The fishing families are aligned to a local church and have been a largely closed population since the founding of the community in 1623. The Catholic parish was founded in 1849 and Catholic fisher arrived shortly after. Protestant fishers declined in numbers over the 16th century while Roman Catholics now comprise the great majority. These indicators of social and cultural distinctiveness--of insularity--have made the fishing community less open to outside intervention in the form of government regulation than fishers who

are less distinct from nonfishers such as fishery biologists and managers. Thus religious as well as traditional values make the community more resistant to change than what would be designated the Yankee ports of the Cape (Chatham) and Maine. While fishers are not encouraging their sons to enter the fishery, they resist leaving it themselves. Unfortunately, several developments external to and within the industry, noted above and below, have made staying in the industry difficult.

Issues of concern in the aftermath of Amendment # 5 include the following needs assessment from conversations with those working the docks, attending meetings, and coming to the Fishing Family Assistance Center:

- 1.** Those who want to exit the fishing industry need support for their families while they are training.
- 2.** Wives who never worked need counseling and training. Many wives do have some business experience, however, in that the traditional norm was for many wives to manage the shore side fishing accounts.
- 3.** Many wives need child care assistance.
- 4.** Many need travel assistance to travel out of town for schooling or retraining.
- 5.** Because a large percentage do not speak English, ESL (English as a Second Language) classes are needed which are offered at a time that is appropriate to their home schedules.
- 6.** Many need loans to stay in the business or to get into other types of fishing.
- 7.** Many need assistance and training in reorganizing their businesses and preparing business plans.
- 8.** Many need assistance and training in grant writing.
- 9.** Many need assistance in finding immediate employment.
- 10.** Many of those who work as deck hands are severely underemployed and are experiencing cuts in their income as fishing trips decrease and deck hand shares payed by boat owners shrink to cover the increasing costs of vessel operation.

11. Many need legal assistance for loans, bankruptcy, home protection, Homestead Act, licenses, permits, relocation, violation negotiations, fishing vessel insurance, interpreting regulations, other.

12. Many have no medical insurance, or drop their insurance as they try to cut fishing vessel operating costs.

13. Many are unable to leave the fishing industry because they have fishing vessels with big mortgages and cannot leave them tied to the dock inactive.

14. There are widespread psychosocial impacts in the fishing sector among fishers and their families. They need assistance in dealing with the high degree of uncertainty and stress created by the changes in regulations and by the perceived lack of communication with those making the changes.

15. Many are unable to attend meetings to keep up with rapidly changing and unexpected fishing regulations, having difficulty predicting how regulations will affect their current and future fishing strategies.

The decline in the economic viability of the larger fishing vessels has put incredible pressure on the ability of fishers to make a living. The lack of security from fishing has steadily increased as the management regime becomes more restrictive, fish of certain target species are scarcer, and operating costs continue to rise. One outcome of this has been reduction in crew size to reduce labor costs. There has been a drop in the number of crew employed on the vessels from a high of 10-11 to now just 2-6. Some larger vessels are now operating inshore with skeleton crews of just two to four (e.g., a father-son operation). They cannot afford to work with a larger crew, nor can they afford to fish offshore for any extended periods.

Only 23 vessels over 70 feet which used to work Georges Bank are now fishing in the Gulf of Maine. This has increased the individual crew members' burdens of watch time and other activities while decreasing available employment in the fishery. Thus, the fishery is experiencing an ongoing decrease in the social yield of the fishery, or the number of individuals that find employment and income in the fishery on a sustained basis.

Reduction in crew size is accompanied by longer trips at sea (10-12 days) compared with 7-8 days several years ago, increasing the work load and stress on remaining crew. It also makes it much more difficult to find good crew for vessels that are short handed. Reduced crew means there is also less manpower to deal with emergencies at sea. This puts the remaining crew at greater risk. The

loss of days at sea which accompanies putting into port in bad weather* pressures captains to stay out even during threatening weather, putting the vessel at greater risk.

*Note by Clay: Captains could avoid losing days at sea by calling out of groundfishing when putting in and then calling back into groundfishing when leaving port. But they would need to land their catch after calling out of groundfishing and before leaving port again.

Deckhands have arguably borne the brunt of reduced crew sizes. Traditionally, the share that goes to the boat is half of the catch profit. To make up for smaller catch and less profit, the boat share is increased. This cuts into the profit shares of crew. Crew aboard larger vessels in Gloucester and New Bedford are more like factory workers than independent fishers in small vessels who own their own means of production.

Having little control over the means of production, and being devalued as costs of fishing increase, has a severe impact on deckhands. They are already at the lower end of the job satisfaction scale (Poggie and Pollnac 1980). As they are further marginalized, relationships with captain/owners become strained. Deckhands have no control over the production process, but in fact are earning less and less as the captain/owners they work for put more and more of the catch share into covering the operating expenses of the boat. One estimate of a deckhand's earnings was that his \$300 share for a recent trip, considering days at sea are 24-hour full time* activities, amounted to \$.40/hour.

*Note by Clay: The standard work day at sea is at least 12 hours long, usually in two shifts of 6 or so hours each. As number of crew decline, number of hours per crew increase.

Based on US census data, the annual medium family income for Gloucester is \$32,690, for non-family \$17,258, and per capita \$16,044. Data from the Doeringer, et al. study of 1986 suggested that captains and crew were making incomes higher or comparable to this over ten years ago (\$30,000 to \$35,000 for crew and \$50,000 to \$55,000 for captains) and the amounts spent by offshore vessels to cover trip expenses suggest that, even in decline, the fleet continues to generate substantial incomes for the port of Gloucester.

Table 10 documents the contrast in expense between vessels of different sizes.

As vessel size increases, there is a considerable increase in operating expenditures, such that the average total expenditures for a larger vessel operating with a normal complement of five crew is approximately six times that of the smaller day boats. Increased costs come from greater number of days at sea, which translates into higher labor, fuel, ice, and food expenditures. Risk is thus considerably greater for larger than smaller vessels. If a vessel comes in with a "broker" (makes no money) then the subsequent economic loss is also greater. Reduction in days at sea thus puts the

greatest

Table 10: Average annual expenditures for the Gloucester Fleet, 1994 dollars

Average bill -dollars spent in the City of Gloucester	Small (day) boats (0-49 feet)	Medium boats (50-89 feet)	Large boats (over 70 feet)
Fuel	\$12,000	\$60,000	\$120,000
Ice	\$2,000	\$9,000	\$22,000
Food	\$4,000	\$11,000	\$15,000
Gear purchases	\$4,000	\$20,000	\$37,000
Repairs	\$2,000	\$20,000	\$61,000
Bookkeeping	\$2,000	\$2,000	\$2,000
Payroll	\$40,000 (2 crew)	\$25,000 (3 crew)	\$150,000 (5 crew)
Average Yearly Total	\$66,000	\$147,000	\$407,000

Source: City of Gloucester, compiled by Gloucester Fisherman's Wives Association

pressure on the largest boats, for fewer total trips makes it more difficult to cover expenses for the higher relative costs (in comparison to smaller vessels) of trips that are "brokers."

Commercial fishers in Gloucester have developed fishermen's family log books and decades of fishing experience provide them with a sound basis for tracking changing conditions of the fishing grounds and stocks. For example, one fisher perceived that besides overfishing, the scarcity of certain fish stocks could be related to changes in the water temperature in traditional fishing:

"The fish have been moving north and east away from us as the water temperatures have increased. Ten years ago. I couldn't put my hand in the water that washed up on deck without it freezing up from the cold. Today, I can get my hand wet and it doesn't even bother me. The bay in the harbor always iced up in the winter time, but it hasn't done this for about seven years."

Folk knowledge of fishing in Gloucester is based on hundreds if not thousands of collective person years of fishing. The use of this folk knowledge is critical to fishing success. Many fishers try to implement practices that are conservation oriented. This does not mean that there are others who ignore conservation practices. Fishing in restricted areas, using net liners, and fishing out of season are not unknown. The increase in severity of fines is partly a reflection of the need for strong enforcement.

A Commercial fisher on logbooks:

I have a friend who ran a day boat - used to go off of Boston to fish. But now it is all polluted. To bring the fish back you must take the poison out of the water - if accurate data had been made available to the feds 20 years ago - the books - log books on where the fish are - where to go to catch fish how far to set the nets - the book that went from generation to generation - book updated every year - if you ever tried to break into the business and didn't have access to this information, you would not make it fishing.

The Gloucester fishing community has consistently supported a variety of measures to conserve

stocks. Their role has not been recognized by the public. Recent specific issues and actions expressed by key respondents include:

The fishing community, itself, has proposed a conservation plan for the MGF but this went unrecognized in the Amendment # 5 and # 7 hearings.

Some stocks are being depleted; but there may be larger stocks of other fish. Markets need to be developed for these so-called under-utilized species through fishers and processors working together.

This community needs help to accomplish development of new markets.

Fishers felt they are not being heard or taken seriously. This point has been made numerous times; but what is the case is there is an imbalance of interests regarding fish and people and how the industry is seen.

Fishers express deep concern over the wasting of fish due to trip quotas on certain species, such as the 500 pound/trip* limit on haddock.

* Note by Clay: The 1997 trip limit is 1,000 lbs.

In "A City of Gloucester's Fishery Management Plan" (1995), we have an example of a folk management alternative. Within this plan are specific measures that contradict the stereotype of fishers and fishing communities as being primarily motivated by greed. For example, the following conservation measures are part of the city plan:

-opposition to pair trawling on groundfish to allow for stock recovery*;

* Note by Clay: Pair trawling has been banned since Amendment # 5.

-proposal to study roller gear to determine a height limit of rollers to protect specific rocky ground areas;

-vessels to give up three 20 day periods a year to reduce days at sea to occur between the peak groundfish spawning periods*;

*Note by Clay: This is implemented for all limited access vessels (including hook vessels) in Amendment # 7, and was implemented for some vessels under Amendment # 5.

-hook vessels with more than 4,500 hooks should be bound by the three 20-day program;

-support of the six-inch mesh size* throughout the range of the Council's jurisdiction, not just in restricted areas such as marine sanctuaries; and

* Note by Clay: Amendments # 5 and # 7 require six inch square or five and a half inch diamond mesh through most of the range.

-gradual withdrawal of fishers from the haddock fisheries until such time that stock increases occur.

B8. Changes in Social Conditions in the Fishing Community

Scarcity of fish, gentrification of the community, and recent regulations are resulting in significant changes in the social conditions for the fishing households and families in Gloucester. These changes are seen both on and off the water, in the household environment, and in the social and occupational networks of the community.

On the water, there is an increase in competition and loss of economic viability, particularly for the larger vessels and their crew. One symptom of this is the breakdown of shared information on the location of fishing grounds, expressed as "chatter" (on the water conversation by marine radio). Chatter allows a fisher to share information on the location of good fishing strikes with others, with the hope of benefitting by reciprocal exchange of information in the future (Poggie and Pollnac 1980).

Breakdown in chatter has been attributed in part to the fishing block* (days at sea) regulations:

"People don't talk to each other anymore on the water. Everyone is so frustrated and afraid. Nobody is helping anybody out on the water anymore. This is because the days at sea program. If I have to come in, and you go out on your block, then if you know where I was fishing, you'll get my fish. So everyone is keeping to themselves."

--Community Leader, Local Fishing Association

* Note by Clay: Under Amendment # 5, those choosing the fleet (rather than the individual) allocation of days at sea met the limits by staying in port for a period related to the length of the trip they had just finished. Under Amendment # 7 the fleet allocation is a set number of days, and these "layover" blocks are no longer required -- though all limited access vessels take their 20-day blocks out during spawning season.

One possible outcome is that overall landings could be decreased even more by the lack of

[information sharing](#). As individual boats don't report concentrations of fish to others, the overall landing figures may decline, giving the impression based on landings that in comparison to previous yearly catch statistics scarce fish resources seem to be even scarcer than they really are. Thus, breakdowns in communication between fishers on the water has caused an image of stocks depressed further than they may be, as fishers who find fish do not pass this information along to other fishers. A consequence is an increase in "brokers." A broker is a fishing trip in which little or no fish is caught and the outcome is a loss in revenue to the boat, captain and crew.

[Mistrust among fishers is exacerbated as conflicts occur between gear types](#). In Gloucester, fishers report that gear conflicts increased in intensity about ten years ago. Up until then, there were few gillnetters and longliners fishing out of Gloucester. Since WWII, mid-water and bottom dragging had been the primary fishing technology. With rock hoppers and other technological modifications, draggers were able to get into grounds where they were previously excluded. Hard bottom is prime fishing area for gillnetting and longlining, because fish tend to aggregate over these food rich areas. Conflicts arose as draggers, gillnetters and longliners all competed for the same hard-bottom fishing areas. Part of this stemmed from the interaction between relative newcomers to the fishery and those who had come just before WWII.

[The competition between the two groups also lead to different perspectives on conservation](#). It was claimed that older established fishers were more concerned with conservation issues than newcomers who were seen as going all out to catch as many fish as possible, including the use of illegal net liners to increase the overall catch at the expense of smaller fish and other non-targeted bycatch species. This stereotyping aside, there was some conflict between the newer fishing families and established families. This lead to conflict, and was exacerbated by a perception of lack of representation of all groups of fishers on the New England Fishery Management Council.

[The primary complaint by key respondents is that council members don't understand the impact of the regulations they create, and this creates confusion and resentment in the fishing community](#). This resentment can lead to non-compliance with regulations that are seen as unfair. This has not substantially changed since the 1980s (Poggie and Pollnac 1980). If anything, competition within the community has gotten worse, and divisions between gear groups exacerbated, by the present system.

["Amendment # 5 is turning us all in to criminals," said one key respondent, commenting on the pressures of conforming to livelihood threatening management measures](#). Related to perceptions such as this is the public's perception that the fishing collapse is their fault, an image promulgated in part by the popular media that portrays today's commercial fishers as greedy "fish killers" and primarily responsible for fish scarcity. A presumption of criminality follows, suggesting that all fishers are guilty, by association, of overfishing.

Part of the regulatory response to overfishing and scarcity has been the use of the call-in system. This is a means to track vessels as they leave and return to port. Interviewed fishers noted this, too, made them feel like criminals, commonly likening the system to "big brother" watching them: *"When I come home from fishing, I can't kiss my wife until after I kiss the telephone"* [calling NMFS].

As fishing becomes more difficult, there is an associated decline in job satisfaction, which may lead to mental health problems. The Department of Health, Education and Welfare (now Health and Human Services) noted in a 1973 summary of research by the Survey Research Center at the University of Michigan that the absence of job satisfaction is related to psychosomatic illnesses, anxiety, low self esteem, worry, tension, and impaired interpersonal relationships. Increased stress due to the crisis was noted by every key respondent interviewed in Gloucester, and resulted in occasional emotional expressions of stress during the interview. Stress has been attributed by key respondents to strong sentiments of uncertainty and helplessness, particularly since Amendment # 5. Other notable impacts include domestic strife, violence, and avoidance behavior:

"We used to go out to the club and to go to church, but I don't do that anymore. What is the point? There is nothing good to talk about. We just go from the boat to the house. Sometimes we go to church, but it's usually only on Easter or other holidays."

As fishers and their families withdraw from each other, you would anticipate a breakdown of the social networks they participate in. Social networks are partly represented by community associations. For example, the Son of Italy is an association comprised almost entirely of fishers and their families. One way to measure this breakdown is in the level of participation in associations. The following table shows the number of registered members in four community associations in Gloucester over the last six years. The Moose and Elks associations are not

Two views on gear conflict between gillnetters, longliners, and trawlers:

(1) "So in the early '80s, with the new technology, the draggers went in fishing ground that never before they were able to go, which is like the hard bottom. But as more gillnetters and longliners came along—which is the other group of fishermen that have spurred(?) within the last 15 years, then we start having the gear conflict problem. Because gillnetters and longliners, they set their gear in hard bottom, so when draggers drag there, they find that all this bottom has been taken. And both methods, gillnets and longlines, has really become a permanent structure at the bottom of the ocean, because they hardly ever get totally removed; they're always, always there.. The draggers really believe that gillnets are one of the major problems, because there are ghosts nets that get left out in the ocean, and they fish forever... When a dragger just drags and goes away, and somebody else comes along and can use the bottom floor. And so what has happened now in the last couple of years has been really a problem with that, but also it's my belief that it's just an excuse that they've found to really take ownership of the ocean, so the draggers always get accused of cutting gear."

(2) I mean, they should figure out what the hell's wrong here, and they should say, "It is large-scale mobile gear tearing up the bottom," and "Are they negatively impacting the food chain at its source?" You know, no cover for the juveniles and increased predation and disrupting the spawn spats and all this other stuff that's being talked about. And when you look at it, that's 75% or 80% of the industry right there. It's the predominant harvesting technique, and it might not be the best mousetrap there is. I mean, it might be too good. We're running out of fish obviously. But instead of addressing any of these questions, instead of putting down a long-term goal to let's work towards sustainability over the next 20 years. If we find that this thing stinks, let's start to phase this out and put incentives in to get into cleaner fisheries and put incentives in to devise new techniques that take into consideration some of these issues, which may be counter-productive and detrimental to the entire chain of species which we're working on."

composed of fisher families, but rather represent subpopulations involved in tourism, local light industry and the bedroom community sector. They have increased or remained stable for the shown period. By contrast, the Sons of Italy and Societa Siciliana show a dramatic decline in membership, from a high in 1991 of 304 to a low of 89 (a 70% decline) for Sons of Italy and from 200 (1991) to 79 (1995) (a 60% decline).

**Table 11: Changes in Membership of Fishing/Nonfishing-related Community Organizations—
Membership in Community Organizations**

Year	Ladies Order of Moose	Gloucester Elks	Sons of Italy***	Societa Siciliana***
1991	226	76	330	200
1992	227	74	260	175
1993	228	88	180	100
1994	229	287	130	90
1995	232	174	110	79
1996*	233	185	84	**

* To date ** Not yet compiled *** Most all are fishers/fishers wives.

Source: 1996 Community Organization Survey

Gelles (1974) and Strauss (1979) report a clear relationship between job satisfaction, family violence, and other social problems. An M.D. in Gloucester with decades of history treating local fisher families, processors, and managers noted a dramatic increase in stress related illness and disease over the last three years. This includes gastrointestinal illnesses, stroke, heart attacks, and hypertension. He attributed this directly to the impact of Amendment # and related changes. Heart disease and other illnesses which impact a person's social relationships have also been related to work dissatisfaction (HEW 1973):

"One fisherman came into the office and was all shook up because he had to throw away a lot of haddock. He went out fishing and caught 2,000 of haddock in his first tow. He had to throw 1,500 ponds overboard. So he moved his boat and reset the net. He got 10,000 pounds, and all of it went overboard. So he moved his boat again, and this time he got 20,000 pounds. Well, for these fishermen, waste is a sin. So to throw all these fish overboard was really hard. This guy was so upset about it when he came in that he started having chests pains right in the office while he was talking about it."

--President, Local Fishing Association

A major source of conflict also comes from the decrease in catch share payments made to crew on draggers. As the costs of fuel and other operating expenses have increased, and allowable days at sea decreased captain/owners are partly trying to make do by decreasing the pay of deck hands.

This has put tremendous stress on deckhands, who as a group are the most poorly educated and least occupationally flexible population in Gloucester.

Local newspaper reports on boat buy backs, the collapse of the groundfish stock, and other related issues have created several problems for fishers, both material and psychological in nature. By taking management agency actions and reifying them into "the industry is dead," they provide no room for recovery and creates a community environment that disfavors those struggling to adapt to the changing fishery environment.

This is exacerbated by the ongoing process of gentrification, a process commonplace in many contemporary coastal communities (Gale 1992). The composition of the community is changing as more non-fishers move into the community. This creates a change in the way the industry is understood, and is a source of conflict between new interests in development and transformation and old interests in fishing tradition and sustainability.

A public official pointed out that there are now four major components to the Gloucester economy, and that they are all important to maintaining the economic health and social character of the community. These are: fishing, tourism, light industry, and folk art. In fact, the largest single employer in the community is Varian Ion Implant Systems, headquartered in Palo Alto, California, which supports 1,400 jobs in Gloucester. However, Varian has just gone through two layoffs, and may eventually be reduced to 450 employees.

In response to the question: "Do you see a shift in the way people {in the community} think about fishermen and fishing in general," a community leader responds:

"Gloucester is going through a gradual conversion from a self-sustaining community to a bedroom community... as a consequence of those people (fishers) who've been migrating out of the city, there's a tendency not to understand the way the fishing industry is run. And I'll never forget the time I was standing on the wharf when I heard a man say to a fisherman on the deck of the boat, Can I have a haddock? And the guy said, I can't give it to you because I need it to make the box. And the person misunderstood what he said and he said, I didn't want it for nothing; I'd have paid for it. And the guy said, "No, no. I need it to make the box." Well, he was speaking broken language, and the man didn't understand him. I did, and I heard the man turn around and say to the person he was with, "Jesus! Can you imagine that? And they get the {fish} for nothing."

I was flabbergasted. I was flabbergasted. So the perception, the perception is changing, because it's no longer predicated upon the basic historical understanding that's ingrained in anybody that grows up in this community. It's now being clouded by ignorance, by even educated people, who simply don't understand the industry."

Light industry is not as intimately linked to fishing as are tourism and the art colony. The fact that Gloucester remains a working fishing port is part of what attracts both artist and tourists to the community: *"there's really serious interrelationships between the fishing industry and those other components that makes the whole thing tick. If you go to a community like Salem, which is a fine community, don't get me wrong. You go there to see maritime heritage in the past. They come here, tourists, to visit, and you see it still alive; it's a way of life to be witnessed the heritage and interrelationships between the two are quite substantial."*

B9. Conclusions

The ground fishers and families of Gloucester are experiencing a great deal of stress and economic hardship due to recent and proposed regulation on the fishery. Increased competition and conflict, loss of days at sea, and increasing operating costs are all contributing to the crisis. Large scale draggers are having the most difficult time, and deckhands on these draggers are the most vulnerable to the decreasing economic and social viability of the fishery. Gillnetters and longliners are also suffering from new marine mammal regulations which curtail the areas they can fish. In comparison to Portland, the present and potential loss of social capital in Gloucester is greater, and the flexibility to respond to severe cuts in days at sea is more limited.

Through organizations such as the Gloucester Fishermen's Wives, concerted efforts are being made to constructively adapt to the fishing crisis presented by Amendments # 5 and # 7. Representatives of the fishing community are writing grants for federal assistance, promoting underutilized species, and working with state and regional religious, service and state organizations to diversify the options available to those in the fishing industry.

As of yet, attempts to adapt to the new regulatory climate have been difficult, but should improve with time if resources are made available. Switching to underutilized species such as herring carries high costs, and the difficulties of breaking into new markets also limit the success of this venture. The proposed introduction of a local fish auction is a positive development, and new initiatives to buy back vessels could somewhat alleviate the situation. However, the overall assessment is that many fisher households are at or near social and economic collapse. Efforts are being made and could be supported by management which diversify the fishery through retraining programs, co-management of resources, and other initiatives to mitigate the crisis situation of this population.

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III. Primary Ports: Community Studies

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C1. Overview of Chatham Groundfishing

Situated on Cape Cod, between Gloucester and New Bedford, Chatham's fishing fleet represents, most likely, the future of fisheries that are able to remain viable in a setting of increasing coastal gentrification and development of the coast for recreational purposes. It is, by most accounts, a fleet comprised of smaller vessels than those in New Bedford, Gloucester, or Portland; its fishers use a wider range of fishing gears than those in the smaller ports, with fewer relying on dragger nets and more relying on gillnets, longlines, hand lines, and traps. This suggests Chatham is a less specialized fleet than the large ports to the north and south. Chatham fishers, in fact, view the larger fishers with some disdain, seeing them as primarily responsible for the current crisis in the fisheries.

By contrast, within Chatham, fishers expressed far less competition than what we have witnessed in New Bedford and Gloucester. During our focus group in Chatham, when the issue of conflict arose, we elicited the following:

"We fish with our monk gear right in with the lobster gear most of the time, so for the most part we get along. But there's two or three guys we can't get along with. But for the most part, we do. And the draggers aren't towing in where we are, because the lobster scares their fishing. But a scalloper will come through and decide there's some monkfish and set a few traps. But other than that-with Chatham, at least where I am, there's a little bit of cooperation."

Another fisher added, *"If there's a problem between the Chatham fishermen, I don't think it's when they're fishing; I think the biggest problem with Chatham is that the different gear types don't get together and take on the mobile gear...And the mobile gears, they hate other, they pay somebody to represent them, and they speak with one voice to the Council and to Congress and to the state. But Chatham speaks with a bunch of little voices."*

The competition that does exist in Chatham occurs around gillnetting, which was reported to have increased in the past few years and is not considered, by fishers using other gears, one of the more damaging gears in the fishery.

Fishing in Chatham, in any case, occupies an economic niche within a larger economy based primarily on tourism and seasonal residence. Chatham is a seasonal community, quite wealthy, with many summer houses and seasonal tourist cottages and businesses that open only during the summer. In years past, the seasonal fluctuations in the town's population were more pronounced, but today more shops and stores remain open through the year. These provide the bulk of the employment in Chatham, along with service and construction personnel who staff the motels, bed-and-breakfasts, and cottages during summer and, usually through the late winter and spring, repair or make ready for residence the seasonal homes. Summer remains, of course, the busy season for both fishers in Chatham and those involved in the tourist industry.

Chatham's attraction as a tourist destination derives in part from its prominent location at the elbow of Cape Cod and in part from its maintenance of New England charm. Most houses are sided with the conventional streaked gray wooden shingles and many are surrounded by stone walls of the kind Robert Frost claimed made good neighbors. The long-running television program, Murder She Wrote, set in a charming New England coastal community, could as easily have been filmed in Chatham.

Reference to literature and television are not merely helpful in describing Chatham, they suggest that the town has tried hard to convey a somewhat removed, romanticized feeling, a fantasy that has little room for the industrial clutter of a fishing fleet like Gloucester's or New Bedford's. An obviously industrial fleet deters tourism unless it remains confined to out of the way harbors that have not yet been zoned for condominium development.

The aesthetic incompatibility between large vessels requiring mammoth processing operation and quaint shorelines for shell collecting and sunbathing accounts for the current

character of the Chatham fishing fleet.* This incompatibility accounts as well for the downplaying of the fishing crisis in Gloucester by individuals with vested interests in tourism and the marginalized locations of commercial fishing in Ocean City, Maryland or Cape May, New Jersey.

*Note by Clay: The Chatham harbor is also too shallow for large vessels to use comfortably.

Chatham's fleet seems to have grown up with the community's emphasis on tourism, however, much in the same way the Maine Lobster fleets have, in general, grown up with recreational sectors of some of the communities between Portland and Portsmouth, New Hampshire. Evidence of how well integrated the recreational and commercial sectors are in Chatham was reflected in an interview with a marina owner there. When asked whether or not the government knew how extensive the support sector was, he responded:

"I don't think they know how extensive it is; I know they don't know how extensive it is, I've always told people: the fishing fleet ends up on Main Street, because without it-for one thing, the tourists still come to see the fishermen unload their catch, and then they go up to Main Street to buy their sweaters and hats. They don't think about that. This town is solely geared for that fishing fleet, and that's what brings tourists, that and nostalgia is overlooked, as well as the support group, the baiters and the related businesses in town."

This individual believes that the commercial fishing industry is more than a merely quaint appendage to an otherwise seasonal vacation spot, but central to Chatham's character and charm.

C2. Port Infrastructure

Chatham's fishers depart from a municipal pier and from a few sheltered harbors around town, mooring their vessels to poles in the shallows in the same way lobster boats add a picturesque dimension to nearly all ports of coastal Maine.

Although the Chatham commercial vessel list lists 291 commercial fishing vessels,

Fishing Type	Number	Percent	Length
Gillnet	21	25%	35' to 48'
Longline	21	25%	25' to 44'
Dragger	5	06%	38' to 45'
Other	37	44%	26' to 38'
Total	84	100%	25' to 48'

reports of active, full-time fishers we interviewed suggested that only between 75 and 85 full-time fishing vessels fish out of Chatham, with most of them in the small to medium range, measuring between 30' and 50' in length. Thus, many of those licensed as commercial fishing do so on a casual or part-time basis. Two recent in-depth studies in North Carolina (Griffith 1996; Johnson and Orbach 1996) found that only around one in every four commercially licensed vessels was operated by full time fishers. Generally, those vessels under 25' are not engaged in commercial fishing, and most vessels listed on the Chatham list are between 13' and 20' in length. Those longer than 25' were reported to fall into the following categories (Table 12).

Obviously, dragging-the principal gear of the specialized ground fishers-is far less common than gillnetting and longlining in Chatham. This is due not only to the physical and social characteristics of the port, but also to market factors. Chatham fishers claimed that they fish for a quality product, selling primarily fresh fish that is, of course, in high demand among the tourists and seasonal residents. Longlines, they claim, are least damaging to fish and gillnets less damaging than druggers; daily fishing, too, contributes to the emphasis on quality that has developed here, since fish are landed within hours instead of days of being caught.

Gillnet vessels tend to be somewhat larger, on average, than longline vessels, with the majority of the latter falling in the 30' to 40' range and the majority of the former longer than forty feet. Other vessels included those that specialized in tuna fishing, a handful of lobster/trap vessels, and three that fished with hooks but not longlines. These tend to be smaller, with most of them under 30' in length.

Chatham fishers, in part because of the smaller size of their vessels, tend to be more constrained by weather and seasonal considerations than the larger fleets of Gloucester, New Bedford, and Portland. Many of them take most of the winter off, concentrating their efforts during the summer and fishing intermittently through the spring and fall. Some reported that the 88 days at sea regulation would have little impact on Chatham fishers because during a typical year they fished no more than 100 to 150 days anyway. Some expressed the belief, in any case, that the 88 days at sea would add up to 176 12-hour fishing periods, which, taking primarily day trips, is about as much as they fish during the course of a typical year.*

*Note by Clay: Days-at-sea are, in fact, counted in hours and minutes. Thus, a day trip vessel uses less than a full day-at-sea on a typical day trip. There is a slightly different rule for day gillnet vessels than other day vessels, since the gillnets themselves generally stay in the water even after the vessel is home for the day. Thus, any day gillnet trip of 3-15 hours counts as 15 hours. A trip of less than 3 hours counts as its exact duration (to allow for setting sail and then having to turn back suddenly for bad weather). A trip over over 15 hours also counts its exact duration. Other non-gillnet day vessels count their exact

duration at all times.

Vessel size in Chatham also influences their range: most do not have the fuel capacity to fish further than fifty miles off shore, and most fish either in state waters or within twenty to thirty miles of shore. Chatham fishers also deviate from fishers in the ports dominated by larger vessels in that they tend to move among different fisheries and different gears through the course of their lives and over the course of a single year. Typically, they combine winter shellfishing (scalloping or clamming) with summer groundfishing; according to several informants, they compete with many of the part-time and casual commercial fishermen who depend on shellfishing--particularly clamming--to supplement annual earned and unearned incomes.

A couple we interviewed exemplify the practice of moving among fishing, nonfishing employment, and fisheries-related work through the course of their lives, a common occurrence among fishers like those in Chatham:

Karen and Allen McPherson (pseudonym) make most of their earned income by supplying bait to between eight and ten longliners who fish out of Chatham. Obviously strongly attached to the lifestyle of a coastal community, Karen and Allen also shellfish during the winter, something Karen learned from her father when she was a young girl. The bait supply business, like most businesses in Chatham, is busiest during the summer months. Karen and Allen hire four additional employees during these months, not only because of increased longlining activity but also because Allen sets eel pots during the summer and fishes for dogfish.

When asked about whether or not the current crisis would force them to move from Chatham, Allen answered, "No, no. It would take a little bit more than that to push us out. I've done a lot of different things in my life, so it's not like I couldn't switch jobs. I've been in the siding business and I've built houses for numerous and numerous years. I don't want to have to do it again, but we always have that option."

Allen's construction background, of course, is common among fishers and construction is one of the common industries into which fishers move during off season or times when fishing is poor. In Chatham, a construction background is doubly important because the winter and spring months are heavy demand months for construction skills. Yet Karen and Allen have not confined their options to fishing, bait supply, and construction. Allen was one of the few we interviewed who expressed some interest in aquaculture, perhaps because of his familiarity with eels. Eels have been receiving a great deal of attention in New England as a good candidate for aquaculture. Along with urchins, eels have attracted

so many fishers in Maine that crowding has begun to occur.

C3. Fishing Organizations and Associations

Interviews with Chatham fishers revealed that the formal organizations representing them include the Cape Cod Hookfisherman's Association, the Shellfishermen's Association, and the Massachusetts Lobsterman's Association, but none of the individuals we spoke with expressed a great deal of enthusiasm about any organized political or lobbying activity to emerge from the Cape. Principal regulatory concerns among Chatham fishermen were that ITQs and TACs (Total Allowable Catch limits) would devastate their fisheries. Several quotes were similar to the following regarding these two regulatory mechanisms:

"ITQ's would demolish me....From talking to the man from Alaska who was highliner-he came down to Chatham to talk to us {about ITQ's}, and I talked to him for quite awhile afterwards-and from talking to him, if ITQs come, I'm out of the business....Because I'll probably have such a small quota allotted to me. Because, see, the ITQs will be directed towards boats like those really big draggers, like the ones that show the best year and use the best technology first. It rewards the guys who caught all the fish initially. They'll be given a small amount of fish to catch; and I'll be given a very, very small amount of fish to catch, and I'll end up selling my ITQ to probably a company or something like that."

In terms of conflict and cooperation among fishermen in Chatham, they portrayed relations within the town's fishing community and among similar towns along Cape Cod as more cooperative and more agreeable towards one another than towards fishers from other, more industrialized ports. This facade of cooperation conceals one source of conflict within Chatham, however: that which occurs between hook/longline fishers and gillnetters.

Gillnets were introduced into Chatham in 1978. The innovation diffused through the community relatively swiftly, yet obviously not all of the fishers converted to gillnets. We interviewed the man who claimed to have been among the first to use gillnets in Chatham, and he justified their use as response to growing competition from draggers based in the industrial ports:

"The way I analyze it, is that at the same time were upgrading technologically--if you want to think of it that way, a pretty good way to think of it--because at the same time were switching over to gillnetting, the draggers were also making a huge

movement. So we weren't even getting ahead, although it looked pretty good for four or five years. We were just really sort of--I call it 'joining the 20th century,' because the way we'd been before, for better or worse, was very much a pre-industrial outlook on fishing."

Despite the competitive edge gillnetting may have given some Chatham fishers, others object to its use, making statements like:

"The gillnetters are farming. You know what it's like--they set the gear and they own the spot. The Channel and back in the inshore grounds, all traditional hook spots have been taken over by the gillnetters. They don't fish here in the winter because the fish are small, and also they make so much money in the summer that they don't have to fish in the winter, the majority of them. But they really take over the grounds; they've got nets on every wreck. They're all good fishermen, but the LORAN makes them a good fishermen, for one thing. If you went back to the old days and used your wristwatch, half the guys wouldn't be able to find their way home. But the gillnets really are a major problem."

As a reflection of the difference between Chatham fishers' relations with each other and Chatham fisher's relations with fishers from other ports, a much more frequently mentioned and vociferously opposed fishing practice than gillnets has been dragging that damages the bottom, particularly the use of "rock-hoppers," or nets outfitted to roll across rocky bottoms by means of thick cables and wheels. The opposition to this gear emerged, usually, in the context of responses to questions about changes in the resource.

Commonly, in-shore fishers are particularly sensitive to the conditions of substrates and their effects on fish populations. This is due, to the ease with which in-shore fishers can feel changes in the bottom in shallower water, either directly with poles and other gears or indirectly by encountering snags or recognizing changes in water color or surface texture. Fishers in North Carolina's sounds or the Chesapeake Bay, fishing in shallow water environments, tend to cite changes in substrates frequently in their ethnobiological assessments of resource conditions (Griffith 1996, 1994; Lawson 1988). Exemplary complaints against rock-hoppers read as follows:

"A lot of the gillnetters will complain about the hookers and say they catch all little fish, but that's all that's left. When the gillnet is really fishing and they've got it working well and the fish are chasing bait and they're chasing bait at night, they catch them. I mean, when they catch them, they catch them. They nail them, they

annihilate them, which is something you just can't do. And the next big change that came around here that was a tremendous was rock-hopper gear. They guys would drag their rock-hopper gear...They are rubber, about this big, and they can bounce over the rocks. Before the draggers stayed on the soft bottom; they could catch enough fish in the soft bottom, there was enough fish around. And we've seen the draggers out there and I'm over here on the hard bottom, and the guys would be gillnetting and jigging on the hard bottom--and the gillnetters would be out in the hard spot. But then all of sudden, a couple of guys came up with this hard-bottom gear...But the thing about it was, first the rock-hopper gear worked fairly well so we had to compete with them momentarily, but they'd still hang up. But then {late-1980's} things were still surviving and still plentiful. Everything was still relatively prosperous."

"They got this giant net that...stretches as far as Gray Hill. I'm thinking, "Oh, my God. This can't be true." But it was true. They went up to Georges Bank to the spawning grounds in the wintertime and caught. So we were fishing one February, '87 or '89--I can't remember when, and the fish didn't show up. And I was talking to a fellow by the name of McMellon and I said, "The fish didn't show up," and he said, "They caught them at the pass." Those guys nailed them, so that was a big change, because there was still a lot fish in the winter. But these guys really nailed them...They were wiping them out. And you better remember that there are just a few guys getting really rich, and you're getting rid of the guys like me, because I'm getting squeezed out of the fishing, you understand what I'm saying?"

Summarizing the political activity and organizational practices of Chatham fishers requires few words. There are not powerful organizations emerging to challenge Amendment # 7 and relatively little interest or participation in organized political activity.

C4. Conclusions

Community concern over Amendment # 7, gear conflicts, and reduced stocks weigh on the fishers of Chatham. Although not as visibly under duress as fishers in Gloucester, they are worried about the future of the fisheries, but have not developed a political organization to voice these concerns. Lack of organizations stems from a strong spirit of individualism in the fisher population. Conflict with draggers from other ports, and restrictions on fishing areas and days at sea are shared concerns in the Chatham fleet. However, an advantage of the Chatham fishers is their lower capital costs (no large draggers and crews) and the ability to switch between different stocks, including shellfishing, on a cyclic basis. A most telling sign of stress was demonstrated was when a fisher broke down when discussing

restrictions on fishing and declines in stocks. Regardless of adaptive strategies of non-destructive gear and smaller boats, the MGF is perceived to have significantly declined over the last ten years by fishers, and the future remains uncertain.

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III. Primary Ports: Community Studies

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D1. Overview of New Bedford Groundfishing

New Bedford is a long, narrow working class city built from south to north along New Bedford Harbor, facing the city of Fairhaven across the water. Its waterfront constitutes the city's industrial fringe, providing dock space at several clustered, crowded locations for what is arguably the largest fishing fleet in the Eastern United States, if not in terms of numbers of vessels then certainly in terms of the tonnage of those vessels, the numbers of people employed in fishing and fishing-related industries, and their capacity to land fish and shellfish. Along with scallops, groundfish are the fleet's primary target species.

Of all major groundfishing ports in the eastern United States, the wider community of New Bedford is probably the most dependent on the MGF as its economic heart and soul. Not only does New Bedford trace its history directly to a fishing past, beginning as a whaling center and evolving into the dynamic industrial scalloping and dragging fisheries of today, as the manufacturing base of New Bedford erodes away, the fisheries remain one of the few potentially high-income pursuits available.

Under the current economic conditions, New Bedford's attempts to promote heritage tourism seem like a somewhat cynical assertion that the city was far more important as a center of commerce in the past than it is today. Its heritage as a whaling center--nicknamed Whaling City a center of manufacturing built up around textile and clothing mills, and as a tolerant northern city known for harboring fugitive slaves prior to the Civil War is chronicled in the halls of museums and around the city's streets on visitor walking tours. Physical remnants of this past poke through the streets with artifacts as humble as cobblestones and as towering as museums and merchant houses that provisioned ships with supplies for long excursions at sea.

Social and cultural remnants of that past appear in the chipped wooden whales lining building facades and the faded insignias of labor unions that dominated the city earlier this century. About New Bedford Melville wrote, "But think not that this famous town has only harpooners, cannibals, and bumpkins to show her visitors. Not at all. Still, New Bedford is a queer place. Had it not been for us whalers, that tract of land would this day perhaps have been in as howling conditions as the coast of Labrador....In New Bedford, fathers, they say, give whales for dowers to their daughters, and portion off their nieces with a few porpoises a-piece" (1851: 40).

Imagining that past is no more difficult than moving from pier to pier along New Bedford Harbor, where a sizable groundfish and scalloping fleet has replaced the whalers, or watching striking workers picket Cliftex Corporation over managers' refusals to increase workers' wages. From Fairhaven, across New Bedford Harbor, the city skyline boasts an impressive array of smokestacks that, unfortunately, project skyward from closed and boarded-up factories. Although living reminders of the heritage of fishing and manufacturing abound in New Bedford, signs of working class decline are equally evident. These range from the devastating superfund clean-up site on the northern edge of town to the disconcerting legacy of 52 sunken, sold, burned, dispossessed, and outlawed vessels that have exited groundfishing since 1984, and the 31 scallop vessels similarly cut from the fleet.

Struggling to hang onto their legacy, ground fishers and unionized, blue collar workers find themselves in similar straights: both have witnessed the erosion of their ways of life over the past two decades and both have been chagrined by political and economic developments in Massachusetts that favor high-tech, entrepreneurial job growth and turn their backs on blue collar, local, traditional occupations. The Massachusetts economy has succumbed to the lures of globalization and an ever expanding service sector capable of providing little more than minimum wage jobs. In New Bedford, among the more trenchant reminders of this has been the repeated attempts to build on the empty promises of the state lottery by admitting a casino into the city.

Globalization in New Bedford has paved the way for the loss of blue collar jobs to cheaper overseas production sites, for the growing reliance on imported seafood, and for the increasing presence of foreign labor in the processing plants.

Ironically, many New Bedford fishers have been involved in global politics for generations. Two transnational communities make up a sizeable portion of the fishing fleets that fish out of New Bedford: Norwegians and Portuguese. Another, smaller group of fishermen come from Nova Scotia.

Most important in the groundfishing industry are the Portuguese, who come from mainland and island territories of Portugal, including Cape Verde and the Azores. They arrived in several waves through the 19th and 20th centuries and have established an ethnic enclave in which knowledge of English is no more a necessary prerequisite to survival than it is among Cubans in Miami or Puerto Ricans in Spanish Harlem (Baganha 1991).

Strong ties to Portuguese villages still exist, making the community transnational in the textbook sense of the word, comprised of "processes by which immigrants forge and sustain multi-stranded social relations that link together their societies of origin and settlement" (Basch, Glick-Schiller, and Szanton Blanc 1995: 7). Among the New Bedford Portuguese, these social relations are based first in family and second in village or region of origin, keeping the community in New Bedford alive with the images and cultural paraphernalia of Portugal. Even second generation Portuguese, born in the United States, express allegiance to Portugal rather than the United States. A boat-owner who was closely knit into the Portuguese community of New Bedford, in response to a question about her nationality, said, *"Well, I consider myself Portuguese. My mother was born American, first generation; I'm second generation. I'm first generation through my father. I'm Portuguese; I'm not American, I'm Portuguese."*

The strength of the Portuguese community, similar to the Italian community in Gloucester and the Norwegians in New Bedford/Fairhaven, was noted by Doeringer, Moss, and Terkla in their mid-1980s study of New England's fishing economy (1986), serving as an important predictive variable for many of the same behaviors we witness in the fishery today. How Portuguese fishers adapt to the current crisis and future regulations derives in part from the collective funds we refer to as social capital, which Doeringer, et al. called "family capital," and in part from their membership in a community that spans two and sometimes more than two nations.

The blue collar character of the city is reflected in the area's labor force statistics, with persons employed as "operators, fabricators, and laborers" rivaling those who have streamed into the "technical, sales, and administrative support" category.

Table 13: Employment in New Bedford by Economic Sector

Sector	Number	Percent
Technicians, Sales, Admin.	10,947	24%
Operators, Fabricators	10,387	23%
Managers, professionals	6,823	15%
Service occupations	6,194	13%
Precision crafts, repair	4,801	10%
Self-employed	1,684	4%
Farming, fishing, forestry	1,033	2%

These figures, based on the US census, underestimate the numbers of the New Bedford/ Fairhaven fishers by about 50 percent, presumably because they include information only from fishers who live within New Bedford city limits and leaving out those who live in surrounding communities yet fish out of New Bedford. Nearby Taunton, for example, has its own sizeable Portuguese community, and a sizeable portion of the fleet is based across the harbor from New Bedford, in Fairhaven. More accurate counts of fishers and vessels come from local observers.

D2. Port Infrastructure and Demographic Information on New Bedford/Fairhaven

New Bedford's waterfront looks like an industrial port. A small fleet of recreational crafts tie up at the marina on Pope's Island, between New Bedford and Fairhaven, but along both the New Bedford and Fairhaven waterfronts, 80' to 100' vessels tie up, three deep, at between 15 and 20 locations up and down the harbor. Although a handful of smaller (45' to 70') vessels tie up among or nearby the larger vessels, New Bedford's fleet is clearly dominated by the larger vessels. Estimates of the fleet's size are as indicated in Table 14.

Table 14. New Bedford/ Fairhaven Fleet Characteristics (Source: New Bedford Seafood Coalition)

Characteristic	Number
Vessels Registered	280
Vessels Fishing out of Port Regularly	412
Druggers	190
Scallopers	155
Gillnetters	35
Longliners	16

These figures are not too different from other recent estimates drawn from direct field

observations rather than from licensing data. McCay, et al. (1993: 143), for example, stated that, "There are approximately 300 boats in New Bedford. Thirty to 40 are small draggers in the 45-65 foot range, 120 are large draggers in the 75-85 foot range, and 150 are scallopers in the 75-85 foot range."

These vessels employ around 2,000 fishers; the dragging fleet, by itself, employs somewhere between 600 and 1,200 fishers, as groundfishing vessel crews range in size from three to six individuals. Crew size on both scallop and groundfishing vessels has shrunk in the past few years, in part because of the crisis and in part due to regulations designed to curb fishing effort. Some captains and boat owners have adopted crew rotation schedules--a variant of job-sharing--instead of laying off crew.

While many vessels are owner operated, there still remains a contingent of non-operator vessel owners within the New Bedford fishery that marshal fleets, hiring captains and crew. These individuals set some of the rules that govern labor relations throughout New Bedford, negotiating vessel shares and hiring practices, but union representatives we spoke with in New Bedford reported that payment systems and crew-captain relations vary widely from vessel to vessel. In the late 1980s, boat owners who fell into this category numbered 32; typically, these owners owned anywhere from one or two to six or seven vessels. As a sign that vessel owners' powers are increasing, during the strike of 1986 the union argued for a 42-58 percent split in profits, with 42 percent going to the owners, and owners desired a 49-51 percent split. A decade after the strike, the split on union vessels is 46-54 percent, with the owners receiving 46 percent.

In addition to boat owners, captains, and crew, the full New Bedford/ Fairhaven fleet generates business for around 75 seafood processors and wholesale fish dealers and 200 other shoreside industries. Together, these businesses provide employment for around 6,000 to 8,000 additional workers.

The above figures, of course, include only those individuals employed directly in fishing and fishing-related industries; missing from these numbers are the health providers, real estate companies, banks, insurance agencies, and small business people who rely on the families of fishing industry employees for a percentage of their business. Even without considering these individuals, between five and eight percent of the people in the New Bedford SMSA (Standard Metropolitan Statistical Area) --far higher when we include members of their families--receive their livelihood primarily from fishing. Even a conservative estimate, assuming two other individuals supported by each fisher and fishing-related worker employed, places the proportion of the population dependent on fishing at between 11 percent and 18 percent.

The support industries that fishers we interviewed mentioned most often as directly dependent on the industry were fuel, ice, and food/supplies. During a major fishers' strike of 1985-86, newspaper coverage focused on the plight of fishery-related businesses within the first two weeks of the strike, suggesting the effects of reduced fishing are felt immediately and deeply along the waterfront. A single vessel's trip supplies were listed as including, "40 dozen eggs, 20 steaks, 20 pounds of bacon, 10 gallons of orange juice, 18 gallons of milk, and 37 loaves of bread" (Sunday-Times, January 5, 1986: A1). A company supplying 45 vessels lost a quarter of a million dollars before the strike was 10 days old, and laid off 22 employees. Besides food suppliers, other businesses affected immediately were welders, restaurants, ice companies, fish wholesalers and processors, and dock workers. Fishers we interviewed for this study commented that the current downturn in fisheries had had ripple effects through the support sector as well. According to one:

"Well, what has happened is I have a welder that does most of my work, and he's an individual--once in a while he'll have a helper, but most of the time this guy works for himself by himself. When money gets tight with me, I can weld myself and I can work on the boat. So that saves me a couple of hundred dollars, but it also takes a couple hundred out of his pocket. So a lot of things that you used to pay someone to do, we do ourselves. It's a ripple effect; as soon as you don't have the money to pay for your services, you stop getting them. And with the more time that the boat now has to stay ashore, if I'm going to be home for a week, I can spend one day or two working on the boat."

Another put it more succinctly, saying, *"Fishermen invest in a lot of money in the community, so there's a whole industry prepared for them, like ice, fuel, food, clothing, the restaurants. They like to go out and drink and eat and socialize"* (translated and paraphrased by research assistant).

These observations reflect the official positions of the city fathers. In 1986, the head of the Greater New Bedford Chamber of Commerce claimed that the strike was costing the metropolis over \$1,000,000 per day and that, "For every dollar paid to a fisherman, \$4 to \$4.50 circulates through the local economy." In 1992, before the current fishing crisis, the average annual income for a fisher in New Bedford was \$36,534. Unfortunately, New Bedford/ Fairhaven catch revenues declined from \$151,300,000 to \$107,500,000 between 1992 and 1993.

The close ties between the city and the fleet are both visible and invisible, material and

[symbolic](#). When vessels come ashore, captains and crew join service personnel to repair the routine wear and damage of sailing. Seafood wholesale and processing companies come alive with the catch. Trucks wait in the parking lots. Beside them, at nine, noon, and three, carts sell sandwiches and sodas to the cutters and lumpers. During the 1985-86 strike, 115 members of the Fish Lumpers Union sat idle while vessels remained ashore or began fishing out of Provincetown.

[New Bedford now has a fish auction modeled after the Portland Display Auction, but many vessels remain obligated to seafood dealers and processors by virtue of credit relations or access to docking space.](#) The New Bedford Seafood Coalition cited the auction as one of the "positive notes" in recent times, saying, "The privately operated Display Auction has attracted a wider range of fish buyers which are seeking a wider range of fish other than the traditional species of fin fish and flounders. Among those species are hake, cat fish, cusk, mud skate wings, halibut, fluke, mackerel, red fish, and blue fish" (New Bedford Seafood Coalition, 1996).

[Relations among boat owners, captains, and seafood merchants are highly varied and often fraught with suspicion and hostility.](#) Most fishers reported that the 1980s strike signaled the end of a long era of fairly cooperative relations. Within the fleet, divisions exist between vessels, between scallopers and draggers, between fleets based on docking locations, and between different ethnic groups. The Portuguese tend to concentrate on draggers, although this was more the case in the past than today, and some Portuguese have switched from dragging to scalloping. Switching of this nature is possible, but costly. According to one fisher who had made this switch:

"My first three boats were draggers, and the boat that I now have is a combination dragger/scalloper. We're scalloping right now; we've been scalloping since 1987. I was dragging from '74 to '87. In that period of time, I went scalloping on occasion; I went for a few months on two separate occasions. In '87 I changed to go scalloping. Draggers weren't making any money... I figured I would go back and I've been at it ever since. Now it's like flipping a coin to see who has the best deal, you know, because the draggers and scallopers are both struggling.... I could go dragging, but it's cost-prohibitive to change back and forth. You're talking \$30,000 or \$35,000 every time you change, so you can't do that if they give you 50 days to drag. It isn't worthwhile."

[These comments and the lack of switching among different fisheries in New Bedford reflect the degree to which the fleets have become specialized, a common characteristics of large-vessel fleets.](#) This specialization is not confined to fishing alone but spills over into

the support sectors and labor relations on vessels as well, making adjustments to changes in the industry more difficult than in other ports, such as Point Judith and Chatham, where fishers engage in more generalized fishing strategies. The history of the union presence in New Bedford has regimented labor-management relations in ways that govern crew recruitment and policies aboard vessels, although it was widely reported that the late 1980s strike, chronicled briefly below, shifted power away from the union and thereby deregulated, to some degree, labor relations in the community and aboard vessels.

D3. Fishing Organizations and Associations

As one of the oldest ports in New England, with its strong ethnic enclaves, organizations and associations serving the New Bedford/Fairhaven fishing fleet are both numerous, multi-faceted, and often well-developed in terms of political sophistication and their abilities to lobby, formally and informally, on behalf of their members. In keeping with the area's blue-collar, working class character, an estimated 600 captains and crew were represented by the Seafarers' International Union during the 1986 strike, as well as the 115 represented by the Fish Lumpers Union mentioned above, but these numbers have declined over the past few years, due to both the general declines in union membership throughout the United States and the difficulties of the fishing industry under conditions of declining stocks. Currently, the Seafarers Union represented 350 fishermen, or around 42% fewer than they represented only 10 years ago. Weakening of unions is occurring throughout New Bedford, in fishing related industries as well as on the vessels and in the ailing textile mills. A fuel barge operator's wife succinctly described the common union-busting practice of closing a union shop and reopening it with a new name yet without a union, saying, *"His [her husband's] place of employment used to be called one thing on a Friday under a union contract; the following Monday they opened up with another name without a union contract, a cut in pay, loss of a pension plan, loss of medical benefits, loss of four weeks' vacation, loss of sick days... The union that the old place used to be represented by was notified and this was over a year ago and nothing has been done by them."*

New Bedford unions, historically, provided pension funds for fishers, negotiated share systems with boat owners, and regulated labor relations on board vessels as well as governed crew recruitment, retention, and hiring and firing policies. With the decline of unions, most of the fishers we interviewed for this study desired more effective representation of the fishing industry, in their relations with boat owners and seafood dealers and with the federal government. Increasingly, of course, the federal government is viewed as the major threat to their future as fishers. The following statement, from a boat owner who is also married to a fisher, captures the spirit of how fishers view their interactions and history with the federal government, and such feelings guide their political behaviors:

"As far as I'm concerned, the American government are assholes. We wanted regulations 15 years ago--15 years ago--to manage the fishery and they said, "No need." Now, a fisherman is a hunter. When you ask to be regulated, there's something wrong. But when they say "No," you just do it. And they just let us go, just let us build more boats and more boats and bigger boats and better boats. And now that the stocks are very low, now they're trying to force 15 years of regulations in two years. And they kill us. If they'd listened to us right in the beginning, and regulated us when we asked 15 years ago, we could live with this regulation and that regulation and just work it within our schedule. You cannot compact something in two years.

"We suffered, but we could adapt to it [Amendment 5]. We could adapt to it. It was very, very stringent, but we could adapt. But now with Amendment 7, they're going to take the 200 days that we had to make us fish 139 days of the year. It's like you working--you work-- could you survive, without your parents, just you alone, working 139 days a year? And next year is going to be 88 days.

"They know that regulation is needed, but not like this. They knew this 15 years ago, and we went to the government and told them, 'You have to stop this, you have to close off that area because of juvenile fish species,' and they wouldn't listen because there was no need. So now all of a sudden, they're being threatened with a law suit and it's like, 'We have to do it now.' So 15 years of concern, they're trying to jam-pack, like I said, in three years. They're not going to do it. We'll never survive."

Recently, as in other ports, the fishing crisis has spawned increased organizational activity among fishers. One organization attempting to represent more fishers and to establish linkages with other Massachusetts fishers' organizations is the New Bedford Seafood Coalition, whose activities include providing technical advice to government and industry, monitoring regulatory developments, communicating with the media about fishing issues, and drawing together fishing organizations throughout New England. The difficulties these and other organizations have in a place like New Bedford is that the loyalties of fishers there run in other directions, away from a unified front and toward the isolationism of the ethnic enclave.

Strong associations have always been associated with ethnic enclaves in the United States, and the Portuguese and Norwegians in New Bedford are no exceptions to this. Historically,

ethnic associations in the United States have spawned insurance coverage programs, access to credit, and social clubs, often building centers of cultural activity, financing churches, and providing social networks for job leads, temporary or permanent housing, and other forms of assistance.

In New Bedford, a Cape Verde Cultural Center and an Immigrant Assistance Center provide some limited services to the Portuguese. The Assistance Center provides translation services in particular, while the Cape Verde center promotes Portuguese cultural education within the public schools, attempting to enhance the status of Portuguese among school children and instill pride in Portuguese youth. As noted above, many second generation Portuguese have been so thoroughly enculturated in Portuguese language and culture that they do not consider themselves Americans. The enclave has fostered several Portuguese restaurants, taverns, food stores, and other businesses that cater solely or primarily to other Portuguese. The New Bedford telephone directory lists the following local Portuguese clubs:

Monte Pio Luzo Americano Corp

New Cape Verdean Band Club

Portuguese American Athletic Club

Portuguese American Social Club

Portuguese Continental Union

Portuguese Sports Club

Young Cape Verdeans Athletic Club

One of our informants described the Portuguese community rather well, saying:

"All day they are dealing with Portuguese people, so they never really have to learn the language. So because of that, they never learn the language, because they deal with Portuguese people, they go to stores and they speak Portuguese, they go to the doctor's and they speak Portuguese. So because everything is handed to them in Portuguese, they never really have to go and learn English..... Go to the stores around here, the fish markets, the Portuguese variety stores, you go to the doctor's,

you go to Social Security, you go to Welfare--I can guarantee you there are people that are employed in these agencies that speak Portuguese. So why learn? Not only that, we're talking about the elderly, we're talking about people that have no education in Portugal... They are illiterate, they don't even know how to write their names; they do a little cross. That's how--they do a cross instead of signing their names. So if they're illiterate, they're never going to learn the language, so it's very tough for them. They can't read and write in their own language, never mind coming into the United States and learning how to read and write English; that's unheard of, and they don't.... The New Bedford Welfare Office, they have people that speak Portuguese. Social Security, they have people that speak Portuguese. You go to doctors, there are certain doctors that speak Portuguese. You go to banks. There's even a community bank that is Portuguese. So we are in the heart of the Portuguese community--agencies, stores around here, they all speak Portuguese. So because of that, people don't feel like they need to speak English, which they don't."

[The Norwegians formed a more tightly knit ethnic enclave in the past than today.](#) Their community in New Bedford drew most of its original membership from a single island in Norway (Karmøy Island), and was built around fishing. Early fishers, arriving around the turn of the century, established the New Bedford Fish Supply, which still operates and which used to support newly arriving fishers by providing them credit (without interest) and outfitting their boats. This practice ended during the 1960s, when immigration from Northern Europe became more regulated, particularly after the 1965 Immigration Act.

[Unlike the Portuguese, the most recent Norwegian generation has fewer concrete ties to Norway and does not express the allegiance we so often associate with transnationalism.](#) The Norwegians have established a church, which, along with an organization called the Friends of Norway, still serves as the cultural heart of the community, although there are no obviously Norwegian clubs listed in the telephone directory.

[The strength of ethnicity as an organizing principle in New Bedford contributes to the conflicts that exist within the port, between fleets and between different participants in the industry, as well as undermines the abilities of New Bedford fishers to organize a unified challenge to Amendment 7 or other regulations.](#) The Portuguese in particular have tended to withdraw more deeply into their enclave as the crisis deepens, considering returning to Portugal as a viable response to economic dislocation and resisting institutional attempts to draw them into the wider economy through retraining. As evidence of this, our Portuguese field assistant translated, paraphrased, and summarized the words of three fishers she interviews as follows:

Fisherman # 1: *He says with this crisis he might return to Portugal, because there's nothing for him to get him attached here. He says his English is worse, because when you arrive in New Bedford, you lose your English because everybody speaks Portuguese.... He said they haven't heard anything, they haven't been informed officially, or have not informed about the new legislation, although they are aware of it... There should be an entity there to retrain Portuguese fishermen, which there is not. He said there should be support for new jobs; there should be employment assistance and social assistance for free. They say that they don't know English, they're not privileged with a lot of assistance that comes because they're not aware. He says Portuguese are too much preoccupied with their own nose and they don't care on getting united and trying to solve their problem. He says they think little, they just think on themselves. And they've got to get united to solve all this situation, they would be better off.*

Fisherman # 2: *He stays out from the government, it's all a lie. Who's going to get the most advantage are the people who are not in the fishing. The fisherman per se is not going to get anything.... These laws are not for the fishermen, not even for the boat-owners. It's for people that have never been in the fishing, like all those programs for retraining. If you look at them and see who the people in front of them, most of them were not fishermen. And he says it's not that he's 47 years old, almost 48, that he's going to learn construction. There's no work for construction. Maybe 2 percent of the new fishermen, of the young fishermen, maybe they can be retrained. But in his age, and also there is a language problem.*

Fisherman # 3: *About the retraining programs, he thinks that the money is just for some people to make money, and not for the real fishermen. Because these associations do not give to the fishermen, because you have to be unemployed to be retrained and then there's the language problem... But how can you be totally unemployed if your wife cannot supply [income]? That's a big stress at his age. What can he do? He's 56 years old learning English.*

D4. Social Dimensions of the MGF in New Bedford/Fairhaven

The common method of bringing new fishers into a fishery through family relations or long apprenticeship-like training regimens is, in New Bedford's groundfishing industry, reinforced by the heavy ethnic, transnational component to the fisheries. This is true of groundfishing more than scalloping, since Portuguese dominate the groundfishing industry and have constructed a more intricate ethnic enclave than the Norwegians. Yet both the Portuguese and the Norwegians in New Bedford have built their communities in concert with the growth of occupational communities based on fishing, and both communities have drawn on fishing communities in Portugal and Norway for crew during times of industry

expansion.

Because of their close ties to fishing communities in the Azores and Cape Verde, crew recruitment has an international dimension among the Portuguese, making apprenticeships on vessels less necessary than in other ports. While this practice allows the fleet to expand during times of economic growth, the reverse is less common. That is, new immigrants and their families can become entrenched in the Portuguese community of New Bedford relatively quickly. Although most state that they will deal with the current crisis by returning to Portugal, others point out barriers to this response:

"A lot of the [Portuguese] men think the same way I do, but their wives don't want to leave their children. Their children get married here and have children--grandchildren--and they don't want to leave. See, I'm not like that. My children are my children because I gave birth to them, but I do not own them. My life is with my husband. I started and hopefully I'll end with him. My children have their own lives. I'll help them as much as I can--live for them, no, because they wouldn't live for me. They're going to live for their own selves, their own lives. And I may do the same thing. And a lot of Portuguese I know, they won't leave because of the children and grandchildren."

Above we mentioned that the early Norwegian arrivals relied on the New Bedford Fish Supply to outfit them and provide them with crew jobs and credit to buy and put to sea their own vessels. This practice has been common among the Portuguese as well, and endured to just before the current crisis. According to the wife of a Portuguese fisher, newly arriving Portuguese fishers routinely attached themselves as crew on Portuguese owned vessels, and sometimes acquired vessels with the help of Portuguese fish buyers or boat owners. Under these conditions, however, it was not uncommon for the established Portuguese to retain up to 50 percent ownership of the vessel, even after the debt was repaid. During the process of repaying the loan or working for other Portuguese as crew, however, local observers reported again and again that conditions for crew could be harsh, bordering on cruelty. Yet complaints are uncommon, in part because the tight connections between New Bedford and small villages in Portugal would result in shame for the complaining party. Again, these mixtures of benevolence and cruelty, enforced via gossip and shame from the home community, are common features of transnational communities.

Relations between Portuguese crew and Portuguese boat owners reflect one dimension of the Portuguese community that has been observed particularly among peoples who compete over what they perceive as scarce resources. While the New Bedford Portuguese tend to be extremely closed to outsiders and densely knit in terms of community rituals,

kinship ties, and so forth, several sources of friction exist within the community, making it difficult for them to organize or engage in effective political activity. Interviews with the wives of Portuguese fishers referred many times to problems of families envying one another and constantly competing to own nicer cars, houses, clothes, and so forth:

"You cannot get the wives involved, they just don't want to. They'd rather sit in the cafe and talk about this one's daughter and that one's son--anything but worry about their own financial future. Portuguese women are terrible, terrible. They're nasty. You'd think that they would be involved in what's going on. As far as Portuguese fishermen--that's what I'm talking about--Portuguese fishermen will come in and give their wives their check. That check, she takes care of, she's got to feed this and that and everything else. I guarantee that check is not the same as it was five years ago; it's less. I would want to be involved. They don't; they sit down, they crochet, they gossip like hell about this one's life and that one's life, and this husband putting the horns on somebody else--and they don't care about what's happening to them."*

*Note by Clay: "Putting horns on somebody else" means having an affair with an another woman.

Another woman, her comments translated and paraphrased, said something like: "She doesn't belong to any fishing support groups within the community. She pretty much has a life of her own, very closed. She says yes, sometimes fishermen help each other, but they feel a lot of jealousy and envy when they talk, like between the families and the wives, there's a lot of competition, like 'my house is better, my car's better, my clothes are better,' and so forth."

Similar comments were elicited from a Norwegian woman. Summarized, she expressed the idea that, although the Norwegian community presents a very organized ethnic appearance, there are strong undercurrents of greed and envy working against effective unification. This woman added that it was better to conduct business outside the family, without infusing one's business activity with a strong ethnic component, suggesting that with family ties also came patriarchal and authoritarian relations.

These observations of Portuguese and Norwegians about their own ethnicity reflect the ambivalence that often characterizes membership in a strong ethnic community in the United States. One of the Portuguese we interviewed expressed rather well the feeling of straddling two cultures in New Bedford, saying,

"As far as perceiving myself, I was 11 when I came to this country, I went to school

here. My very good friends were born in the United States, my daughter was born here, I do a lot of American things. But at the same time, I'm really torn in-between. I go to Portugal and I feel very Portuguese. I'm in the United States, and when I'm dealing with the Portuguese, I feel very Portuguese. When I'm dealing with the Americans--when I go to school or something like that--I feel very American. But I don't know. I'm half and half.... I know the [Portuguese] community very well. I know a lot of people that are also in the same situation; they help the community in general. And yeah, I am very much aware--very much aware of the problems and very much aware of what is going on in the community. We have to be in order to help people."

On the one hand, members of such communities spend a great deal of time and energy securing jobs, housing, and other forms of assistance for new arrivals and for those most severely affected by downturns in economic activity. These behaviors, however, draw on collective funds and often need to be enforced, subtly or overtly, through meaningful social ties and appeals to shared cultural symbols of sharing and cooperation. During times of economic plenty, when everyone's vessel shares are increasing, enforcing these behaviors may not be necessary; when vessel shares begin to shrink, enforcing sharing and cooperation becomes more and more necessary and increasingly difficult. Under these conditions, we should not be too surprised to find envy and gossip emerging within the community and dividing families from one another.

D5. Adaptations and Adjustments to Crisis

Specific responses to the current crisis have been less varied in New Bedford than in the other ports. Movement into alternative fisheries is somewhat rarer here than, for example, among those Portland fishers who have begun gearing up for shrimping. We noted earlier that the New Bedford fleet is highly specialized. While this seems accurate for most vessels, participation in alternative fisheries is not unheard of. A study conducted in 1992-93 (McCay, et al. 1993) suggested that some New Bedford fishers were experienced in the squid, dogfish, butterfish, and whiting fisheries, and many of the fishers have increased their efforts toward monkfish, shifting away from the mainstays of yellowtail flounder, winter flounder, and cod. We can expect these behaviors to increase with further restrictions on catch, although reductions in days at sea may result in focusing fishing effort on those species with which the fishers are most familiar.

We noted earlier that crew sizes have diminished over the past few years, and that some vessels have instituted crew rotation schemes. These seem to be typical responses to the fishery crisis, in New Bedford and in the other ports. How often a crewman stays ashore is

directly related to how much his income drops, of course, so that a crewman who has to sit out one out of every four trips, assuming catch remains relatively constant, will see a one quarter drop in his income.

General responses to this and other crises give little cause to expect that fishers here will emerge from this crisis more adaptable or in a stronger position. New Bedford/ Fairhaven residents displaced by the fishing crisis of the past two to three years have dealt with and are dealing with the crisis in ways not uncommon among blue collar workers and among members of transnational communities: predictably, those without strong kinship or social network ties have turned to government assistance, particularly unemployment compensation, as well as formal political activity; those Portuguese who are part of the transnational community have either returned to Portugal or have begun planning to return. In recent history, the crisis most vivid in fishers' minds was the 1985-86 strike; recounting the events of that struggle may provide some clues to the ways that New Bedford fishers--particularly those without strong ties to ethnic communities--will deal with the current crisis.

The strike began the day after Christmas in 1985, during a slow fishing month, and involved somewhere between 65 and 100 vessels--the Seafarers' Union claimed to represent 100 vessels, the owners claimed they were negotiating with only 65. One source of discrepancy came from the fact that some non-union fishers joined the picket lines in support of unionized fishers, showing the extent to which the fishing identity influences behavior in a port like New Bedford. During the strike, many non-unionized vessels left port and began landing their catches in Boston and Provincetown (in part from fear unionized fishers would disable them), exacerbating the strike's impact on local businesses and creating the impression that more vessels were involved than actually were.

The strike centered on the relative shares of the catch, trip expenses, the pension fund, and control over hiring and firing practices aboard the vessels. Representing the draggers, the union wanted a 42 percent-to-owners-58 percent-to-crew split in shares, with owners covering trip expenses, or a 41 to 59 percent split if the crew covered expenses. Owners wanted a 49 to 51 percent split if they had to cover expenses, or a 47 to 53 percent split with crew covering expenses. In addition, the union wanted to keep the pension fund, while the owners wanted to distribute the then accumulated \$13,000,000 to eligible fishers, and abolish the fund. Finally, regarding crew hiring, owners wanted captains to have the right to assemble their own crews while union representatives wanted to establish a hiring hall, placing crew on vessels according to seniority, experience, and skill.

More telling than the contractual dimensions of the strike were the community responses,

both inside and outside the fisheries. While many of the businesses dependent on fishing simply desired the strike to end, support for the union--the fishers themselves--was widespread. As just noted, crew from non-unionized vessels showed their support of unionized fishers by walking picket lines, vessels that continued to fishing landed their catch and purchased their trip supplies elsewhere, and local restaurants gave away free sandwiches, soup, and coffee to the striking fishers. As the strike dragged on for ten day and then two weeks, New Bedfordians began taking sides, dividing along predictable lines of power and class. The mayor and police moved to protect vessels that continued to fish, dealers and processors who continued to handle the catch, and suppliers who continued to outfit crews for trips. Owners, owner-operators, and crew of non-unionized vessels appeared to support the striking fishers early in the strike but then resumed fishing after the strike was about two weeks old, sailing with reduced crews but sailing nevertheless, and operating out of nearby ports like Provincetown and Boston.

These behaviors suggest that while the spirits of cooperation and unity pervade New Bedford, they quickly wither under pressures to meet mortgage payments and pay bills. If crisis reveals allegiance, it also reveals how shortlived is the effectiveness of mere allegiance to guiding behavior. New Bedford simply cannot tolerate an idle fleet for long.

A crisis of the kind we are witnessing in the MGF, piecemeal in character and thus distinct from the community's experience with the strike, may prolong the spirit of allegiance over a long enough time period to identify coping strategies and strengths in the community's stores of welfare and assistance. Already the Immigrant Assistance Center has expanded its services and identified new sources of assistance to help fishers through the crisis, although the most common response reported to us was not so much dealing with the crisis as fleeing it. Those fishers who have not considered moving or have not already moved back to Portugal have considered or begun migrating into new areas and new waters, predominantly into the southern range of the MGF (to Cape Hatteras) and into the South Atlantic. These areas, of course, have begun tightening up their fishing regulations as this occurs.

In their observations in New Bedford around a decade ago, Doeringer, Moss, and Terkla claimed that "kinship vessels" (primarily Portuguese groundfishing vessels) in New Bedford could weather economic downturns more easily and for longer time periods than capitalist vessels, adopting measures such as rotating crews instead of simply laying off crew and, by such means, spreading the effects of the crisis over a large population, sharing the misery as much as they share the successes of profitable fishing seasons.

The negative side of this practice was that one's ties to the local society and Portuguese

enclave were extremely tight. Consequently, those most severely affected by downturns in the fisheries were unwilling to migrate to more robust economic growth centers than those whose ties to the local area are fewer and weaker in nature. Referring to both the Italian fleet in Gloucester and the Portuguese fleet in New Bedford, Doeringer, Moss, and Terkla expressed this as follows: "Economic and kinship factors strongly tie workers in the fishing industry to their communities and therefore adjustment processes tend to be unusually localized."

While this may have been true ten years ago, among the Portuguese fishermen of today, one commonly stated response to the current crisis is to move, or at least consider moving, back to Portugal. This may be one of the only options for those who lack skills in English or other appropriate labor market skills, as the following boat owner's quote suggests:

"And you know I really feel bad for my Portuguese fishermen.... The ones I've known since I was small, my father's friends, the ones I went to school with, the ones that are my husband's friends--they're my Portuguese fishermen. I feel bad for them, because their language is unreal. You don't understand. Portuguese fishermen deal in a Portuguese society. They go fishing with Portuguese. They come home, in the house is all Portuguese. They go to Portuguese cafes, Portuguese restaurants, Portuguese bakeries, radios, television, newspapers, all Portuguese. They're not exposed to American, to English."

D6. Conclusions

New Bedford's fishing fleet--consisting primarily of large vessels that are highly specialized in either groundfishing or scalloping--is the community most heavily dependent on the MGF along the Atlantic Coast. As New Bedford's manufacturing sector declines, groundfishing has assumed even more importance as one of the few occupational alternatives remaining in the city for individuals with little education but willing to work hard as apprentice fishers aboard vessels. Unlike the other ports, reproducing the fishery in New Bedford will be less difficult because fresh, willing crew are readily available within the Portuguese transnational community as long as the industry remains viable.

The port's transnationalism dimension and the propensity of the Portuguese to deal with difficulty by migrating are two of the port's more resilient features, yet a large withdrawal of Portuguese fishermen from New Bedford would cut into the community's economy quite deeply. Fishers in New Bedford have weathered challenges in the past, yet seem to have emerged from them weaker in terms of unity and cooperation. The fleet remains

active and large, somewhat intractable, only gradually expanding into new fisheries or new economic activities. How deep and how long a decline in fish stocks would have to run, or how restrictive regulations would have to become to dismantle the social, cultural, and physical infrastructure of New Bedford, however, is something we are not likely to learn during the current crisis.

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III. Primary Ports: Community Studies

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E1. Overview of Point Judith Groundfishing

Commercial fishing in Point Judith is a historically recent activity. The port lacks the complex fishing traditions and infrastructure of the larger ports such as Gloucester and New Bedford. Here, a fleet consisting of offshore and inshore vessels follow a cyclic, shifting pattern of resource use that sets Point Judith apart from the northern New England ports. Point Judith boats are diverse in their annual round and approach to the fisheries as opposed to New Bedford boats which only go after groundfish. Fishers are employed full-time as they switch fisheries and boats during the year. The port most similar to Point Judith is Chatham, although Chatham has no large offshore vessels in its fleet.

Beginning in the 17th century and through most of the 18th, the region of southern Rhode Island surrounding Point Judith was a farming community. Pictures from the turn of the century show plowed fields and farm settlements where there are now secondary growth forest and housing developments. The textile industry started in 1802, became prominent in the late 19th century, and then collapsed. The 20th century has seen the decline of agriculture and mill manufacturing, and their replacement with the tertiary services sector, including retail trade, health care, education, and tourism. Commercial fishing is a secondary industry that came to prominence in the 1930s. Unlike other primary sector industries such as agriculture which have declined, fishing advanced in importance (Table 15).

Table 15: Comparison of Fishing/Agricultural Employment in Washington County, Rhode Island

Year	Agriculture	Fishing
1930	1,388	178
1940	847	128
1950	742	197
1960	582	240
1970	304	327
1980	NA	NA
1990	NA	*390

Source: Washington County Census records; *estimated from number of commercial boats and average crew size.

The commercial fishery of Point Judith did not play a prominent role in the regional economy until the construction of a breakwater in the mid-1930s. This effort, part of Roosevelt's New Deal program, was carried out by young men in their early twenties from Kingston and Narragansett. The first commercial fishers used hook and line, beach seine and weir fishing by the middle of the 19th century. Beach seining for bass and menhaden began around 1867 (Whaley 1939:4). Seining was carried out by 'fishing gangs', characterized by fish houses along the beach with bunks in which they slept until it was time to fish. Gangs were equipped with two boats and a seine, and this fishing practice continued until about 1940. Trap fishing and lobstering were also important early fishing methods in the area.

After WWII, the fishing fleet expanded and a cooperative was formed (The Point Judith Fishermen's Cooperative Association, locally known as "the Coop"). This included most all inshore groundfishers in the port. As of 1978, Point Judith's landings made up 61 percent of Rhode Island's total catch. In 1992, the total value of fish landed in Point Judith was \$36.2 million.

With enactment of the 200 mile limit in 1976, fishing strategies began to diversify as lobster, shellfish, and swordfishing became important. These new fisheries did not require the same precision, or knowledge of the grounds as groundfishing. It encouraged a whole new generation of fisher who worked outside the established Coop. Many of these newcomers had never fished before, but were making a lot of money. New entrants were also encouraged by inexpensive boat loans made available through the US Department of Commerce.

The expansion of the industry in the late 1970 pressured the Coop to put a moratorium on memberships. This was extended until 1986-87 when the Coop increased its processing capacity by moving into a new larger building. Yet during the Coop moratorium, other companies filled the niche created by the expanding industry, and by the time the Coop could accommodate the influx, there was little incentive for fishers to join. The expansion of the Coop increased operating costs, and along with pressures from local and external (main market) competitors, contributed to its collapse in 1994.

The social cohesiveness of the Point Judith community was based on sharing the common occupation and

traditions of the fishing lifestyle. Twenty years ago, there was a different atmosphere to the community. Bait processing and related jobs brought locals with no prior experience into contact with established fishers to share in the development of the industry. An event that represented this shared lifestyle was the blessing of the fleet. The blessing was marked with food, games, parades, and other festivities. Commercial fishing boats would be cleaned and decorated for the celebration to symbolically demonstrate their central value in the social and economic life pattern of the community.

Since the post-war days, significant change has come to Point Judith. Tourism is pushing the fishing industry into the economic background as the port becomes more gentrified (Dale 1992). A similar process typifies nearby Newport, where fishing has been overshadowed and incrementally reduced by more than a hundred years of touristic development (Bort 1981). For example, with the increasing costs of boat insurance, insurance companies refused to cover anyone hurt during the Blessing of the Fleet celebration: *"They went so far as to say, anyone participating, such as boat owners letting people on their vessels, would have their entire insurance canceled"*. Such 'insurance blackmail' effectively ended the blessing, and the town officials never fought to keep this significant marker of the local fishing culture alive (personal communication, key respondent). This change represented a shift in social and economic alliances away from fishing towards tourism.

Areas where fishers used to park before setting out to sea are now lots for tourists. All but one of the social gathering spots for fishers have been converted into tourist attractions such as ice cream shops and restaurants. Weakening of the communal identity of fishers has had a negative social impact. A symptom of this is the changing role of the Point Judith Mission. The Mission initially helped fisher families in crisis with food and small loans. Over the years the emphasis moved towards helping fishers with drug and alcohol addiction problems. Today, some key respondents feel the Mission has lost its community orientation as a support resource for fishing families.

Despite these changes, as one respondent put it, "there is still a distinct community of fishermen here." Fisher comprise a social and occupational network: *"People know each other."* The small town atmosphere is punctuated by functions such as the Fishermen's Scholarship fund, that recently had its annual game feast where \$6,000 were raised for the sons and daughters of fishers.

E2. Port Infrastructure

Port facilities, although small scale compared to New Bedford or Gloucester, are adequate for the size of the local fleet. There are approximately 230 vessels of all types berthed in Point Judith (personal communication, Dan McGovern, Division of Coastal Resources). The area is not much bigger than 3 city blocks, but all the activity in the area is associated with some aspect of the fishing industry. Vessels are located at a number of docks which extend perpendicular to the main street. Another set of docks extend off a large industrial area. Across from the harbor are a number of empty docks for seasonal recreational boaters.

There are numerous support industries along the water. The large industrial area at the North end of the street is where most fish processing is done. It has six processing plants including the former Point Judith Coop (now owned by an independent operator) and the Town Dock. Facilities include dockside fuel

pumps, a single restaurant/store, bait shops, commercial marine suppliers, recreational suppliers, and vessel repair shops. Along the adjoining streets are several other restaurants devoted to seafood. The Block Island Ferry also leaves from this port and promotes a large seasonal population of people passing through town.

The main docking facility is the Town Dock. It employs 50 people and hires between 20-50 part-timers as needed. Temporary employees work at the dock on a seasonal basis depending on the species. Permanent employees all live in the area, while part timers live as far away as Providence.

Town Dock handles 12 permanent vessels in the 60-70 foot range. They do handle some vessels from other ports, but primarily deal with the 12 Point Judith vessels. Dock space does not appear to be a problem in Point Judith, as long as boats are out at sea. During storms the boats have to 'raft-out' which means they tie up to one another along the docks. Boats are charged a docking fee which is handled by the state. There are more docks than processing places in town with a dozen different places to tie up. The Town Dock receives all manner of groundfish, although they do not process much cod and haddock.

At one time, the dock served as a cutting dock for yellowtail, fluke, and cod. About seven years ago it shifted its focus because of a decrease in landings for these species. Now they process little groundfish and deal primarily with squid, herring and mackerel. This has caused problems for those who continue to target groundfish. At least one fisher has moved his vessel to Newport, claiming that processors favor the larger offshore vessels. Other important species include butterfish, scup, and fluke. Fish product from Point Judith is considered to be of very high quality. It commands high prices in Fulton's and the Boston Fish Market. The following table shows the Town Dock primary species and their seasons.

Table 16: Town Dock Primary Species and Their Seasons

Species	Season
Squid	Year round, with the bulk in May
Herring	December to April
Mackerel	March to May
Whiting	Year round, with the bulk in summer
Scup	Year round, but recently scarce

Squid, herring, mackerel and whiting are predominantly offshore midwater species caught by large (70') vessels. Groundfish such as cod, flounder and haddock are primarily targeted by inshore medium length vessels but by no offshore vessels.

An ecological advantage for Point Judith fishers is that they are close to many of their primary stocks, including relatively new target species such as squid. Another advantage is that Point Judith fishers have access to mid-Atlantic stocks such as butterfish, which are approaching the northern most point for many species, as well as access to northern traditional groundfish areas and stocks. An important key to adaptability of Point Judith fishers is stock and gear switching. Of all the five groundfish ports, Point Judith fishers are the least dependent on the groundfish fishery. This does not mean that the typical species that compose the groundfish complex are not an important resource (locals hold 67 active MGF permits). Rather, it reflects adaptability in seasonal stock utilization. This adaptability is attuned to the mixing of Mid-Atlantic and New England marine ecozones.

The Sound off of Point Judith was said to be fished out of groundfish some ten years ago, but fishers still bring in valuable catches as they range out to Block Island and beyond. Lobster is also an important local fishery. The lobster and shellfish fishers were severely impacted by the recent oil spill* off of Cape North, Rhode Island. Oil spread in Block Island Sound and nearby waters. Closure of these waters and the death of millions of lobsters and shellfish has had a severe local impact. Lobster fishers have been forced to discard polluted traps, fish outside traditional areas, and discard lobsters that have any signs of being polluted.

* Note by Clay: For more information on this January 1996 oil spill, go to <http://seagrant.gso.uri.edu/riseagrant/oilspill.html>

The spill has also driven some fishers resorted to docking in Newport and fishing in areas they would normally not go to. The greatest impact on the oil spill has been on the lobster fishers, although area closures have also nearshore areas fished by inshore bottom trawlers. Areas closest to the spill zone (nearshore extending to within three miles of Block Island) are still closed to commercial fishing.

In a telephone survey, the total number of suppliers of fisheries equipment was noted as eleven, with 32 wholesale fish and seafood buyers, four seafood brokers, and 2 packers. Fish product from Point Judith has the reputation for being fresh and of high quality. It brings good prices in major markets. However, recent flooding of fish markets with Russian, Canadian, and European fish products has driven down dockside prices of domestic product. The result is that valuable fish such as grey sole are being bought at \$.10 a pound (key respondents, Point Judith and New Bedford), far below their retail value to consumers and far below a break even price for domestic groundfish fishers. Imported fish has few restrictions, and local fishers such as those in the MGF are forced to deal with occasional floods of foreign product that turn otherwise productive fishing trips into net- loss activities ('brokers').

The Point Judith fisheries have been dominated by otter-trawl dragging and lobsterpot fishing, which together regularly make up 90-95 percent of the catch.

E3. The Local Fleet and Fisheries

The fleet in Point Judith is very unlike those in Gloucester and New Bedford, and most similar to the Chatham fishing fleet. It differs from Chatham in having an offshore fleet (17 compared to none for Chatham). The industry and the local fisher families, with the possible exception of lobster fishers and shellfishers victimized by the Cape North oil spill, are under less stress than those in ports such as Gloucester and New Bedford. Adaptability is a trademark of the Point Judith fleet, and local respondents say they have enjoyed six successful consecutive fishing seasons. As a major gear supplier notes:

"The fishermen have had the best year they have had in a long time last year--and that's true in both the Gulf of Maine and south of Cape Cod. It's not true in the traditional New Bedford, Gloucester, and Boston fisheries. But the other fisheries--the Mid-Atlantic fisheries--have grown, and good fishermen in the Gulf of Maine have had a good year despite reduced effort. An I think a lot of fishermen are optimistic for the future. They see things coming along much faster than management, I think, sees them coming."

Like Chatham, Point Judith fishers have the capacity and willingness to innovate and spread their efforts across different gear types and fishery stocks (key respondent, local fishing community leader). For example, recent increases in local landings result from targeting herring, which involves a gear conversion costing \$125,000. Such success and economic flexibility is mirrored in a fleet that is fairly modern and in good repair.

The number of commercial vessels in port are 134. Vessels range from 45-90 feet, with most being ground trawlers. Of these, 55 are between 45 and 75 feet, and 17 over 75 feet. The smaller vessels have 1-2 person crews, with larger vessels manned by 4-5 crew. Most larger vessels fish for squid, herring and whiting. Some smaller inshore boats are still targeting groundfish, but no boats over 70 feet are. More groundfishing is actually done by the small fleet fishing out of Newport than out of Point Judith.

Some larger vessels from Gloucester and other ports may join the local fleet. One fisher from Gloucester recently fished for squid off of Rhode Island. His motivation was to establish a history in the squid fishery (a form of future 'fishing investment'), although he actually lost money on the initial venture.

The captain of the one eastern side trawler still in operation fishes south past Montauk and north to New Bedford. He described his fishing strategy as 'opportunistic' (you market what you can catch). For example, recent catches have included skate, which are salted in barrels and sold as lobster bait.

As in Gloucester, there is an external market for seafood products, including processing of non-local seafood products. For example, the Mitsubishi corporation has an arrangement with Sea Fresh Corporation. Mitsubishi Fresh, Inc. contracts 16 Taiwanese longliners to fish for big eye and yellowfin tuna off of Brazil and Trinidad. These vessels stay out for six months at a time, unloading their catch onto carrier vessels in exchange for fuel and food, and then return to Trinidad where the main plant is located. Fish are handled and shipped from Trinidad to Miami and New York for distribution in the US markets. Most of the harvest is sold domestically. All sales and business are conducted out of Narragansett. The involvement of foreign investors in local seafood processing is a pattern that is being repeated in many ports. Processing of foreign fish products is an important economic activity in both New Bedford and Gloucester, the core ports of the MGF.

E4. Demographics

The original inhabitants of the region were Algonquin Indians, who hunted, trapped and cultivated until being replaced by European colonists. Indian displacement began with the Pettaquamscutt Purchase in 1658, followed by other transactions in 1660 and 1662. White settlers practiced agriculture using slaves and indentured servants for the next 200 years. The industrial sector boomed in the early 1800s with the growth of textile mills, while the agricultural sector experienced declines with gentrification of the area and shifts in labor to mill jobs. Details of demographic transition and economic history from these early years up to 1970 can be found in Poggie and Gersuny (1978). The primary trend has been towards a increase in the services sector away from primary and secondary sectors. In 1970, only 1.1 percent of workers were engaged in agriculture (93 people), 903 in manufacturing (including 244 in textiles), 24.2 percent in material goods-producing occupations, with the majority (74.7%) involved in various professional, white collar, and service pursuits.

As of 1996, the labor force remains skewed towards the service industry, with fishers' numbers remaining fairly constant. Few new fishers are coming into the industry from local communities, but sons of fishers are inheriting operating vessels and permits (key respondent, Point Judith). Tourism has also become a competing industry, as described below. Although fishers are holding their own, access to prime docking space and 'social space' is being lost to tourism development.

Table 17 gives employment figures for South Kingston, Rhode Island, which includes Point Judith and Narragansett, for the years 1984 and 1994.

Figures given for fishing/agriculture/forestry are deceiving, for many participants in the fishery may serve as crew on a part time basis, or live outside the area and commute in, as they do in the processing sector.

Overall, there is a 14 percent drop in employment in the agriculture/forestry/fishing category. In all other occupational categories, a percent increase is apparent.

Employment Category	1984	1994	Change 84-94	%Change 84-94
Agriculture/Forestry/Fisheries	196	168	-28	-14.29%
Construction	97	215	118	121.65%
Manufacturing	781	1,438	657	84.12%
Transportation/Communication	132	355	223	168.94%
Wholesale Trade	47	102	55	117.02%
Retail Trade	1,834	2,027	193	10.52%
Finance/Insurance/Real Estate	132	355	108	81.82%
Service Industries	1,803	2,581	778	43.15%
Total Employed	8,530	11,606	3,166	37.12%

Source: Rhode Island Economic Development Corporation, Providence

Most fishers from this port live in a 20 mile radius. There is little residential housing in the immediate vicinity. Thus, there is no communal enclave of fishers' residences, and fishing families are scattered throughout the small local communities of Southern Rhode Island, including Snug Harbor, Wakefield, and Narragansett. Although Point Judith does have a tradition in the fisheries, most of the people here have little family connection to the fishing industry. The typical Point Judith fisher is around 40 years old, has college or masters degrees, and came into the fisheries during the 60's primarily for the lifestyle and financial independence afforded by the occupation.

The majority of fishers are first generation and lack historical ties to the industry. There is also little ethnic diversity in a population characterized as highly adaptive: *"These fishermen are mostly Yankee... they change. The more ethnically rooted a fishing community is, the more difficult it is for them to change. There is a good side to lack of tradition."*

The overwhelming majority of fishers are white males. Older fisher men refer to themselves as "Swamp Yankees." On the other hand, a majority of fish processing workers are ethnic minorities. The former Coop contracts a company to bus in Asians and Puerto Ricans from Providence to work in the fish houses.

E5. Fishing Organizations and Associations

Several local organizations represent fishers and their issues. Until 1994, the Point Judith Fisherman's Coop was a viable organization which provided marketing support to members. The marketing-purchasing organization of the Coop made it "one of the most effective fishing cooperatives in the United States." Overcapitalization has been cited as the major factor in the failure of the cooperative, but other conditions such as poor prices and market conditions could have contributed to its demise (key respondent, Point Judith). The Coop has been purchased, and is now run as an independent fish marketing organization.

An important fishing organization based out of Point Judith is the East Coast Fisheries Federation (ECFF). It is mainly a large boat organization extending from New Bedford to New Jersey. ECFF is partially supported by funding from local processors, and functions to keep fishers abreast of important management issues. Funds are taken from fuel costs, with \$.3 cents from every gallon going to the organization, which ensures its existence even if there is a lack of interest.

According to the organization president *"most fishermen are issue orientated when it comes to joining organizations...so when the crisis is handled, the organization usually goes down the drain. Because there is a no hassle membership subscription with our organization, these vessels are ensured consistent representation and information from the stability of the organization funds."* The president claims he has never lost a member by default and sees a continuing solid base of participation.

E6. Adaptability and Critical Issues

Of all the ports surveyed, Point Judith is the least dependent on the MGF. Portland has fewer active MGF permits (56), but lacks the diversity in fishing strategies seen in Point Judith. This lack of dependency is not due to a lack of interest in groundfish stocks. Rather, it is an adaptive response to take advantage of the diversity of stocks available in the region. Fishers have consistently followed a strategy that allows them to respond to changes in stock biomass and seasonality. They are not locked into utilizing groundfish, but depend instead on a mix of mid-water species such as whiting and herring, groundfish species, and others such as shrimp, squid, and lobster. The primary issues in this port are distilled from interviews with key informants as the most often mentioned critical issues. They reflect the focus and concern on of Point Judith fishers in maintaining flexibility and adaptability:

being able to change fisheries, versatility, but dampened by the hassle of numerous new permits for the different fisheries and not knowing the control dates until after the fact;

being on the margins of management decision making;

restrictions on the mesh size you can have onboard your vessel with what fish, the need to for these fisheries to be able to switch mesh sizes mid-tow;

gear conflict offshore between draggers and offshore lobster pots as well as inshore between draggers and gillnetters;

fear of ITQs;

positive attitudes towards the buyout program;

inability to improve your business by increasing your vessel size and/or horsepower*;

*Note by Clay: Certain fisheries, such as groundfish and scallops, have vessel upgrade limits on length, tonnage, and horsepower as a form of effort control.

distrust of the political process of developing FMPs (see text box);

discouragement at the time lapse between the gathering of scientific data and the proper use of that data (see text box);

insulted by the way they are perceived and publicly portrayed by fishery scientists (no perceived respect for their knowledge or experience as fishers by those managing the resource) (see text box);

pollution impacts on nearshore waters;

interference in commercial fishing by the developing tourist (recreational boating) sector;

including loss of dock space for nearshore draggers;

poor prices because of the influx of foreign fisheries products driving down ex-vessel value of domestic fresh-caught fish; and

no control over the marketing end of the industry (loss of any control over prices when the Coop went bankrupt).

The development of tourism in south Kingston and a focus on offshore trawling has also created problems for the few inshore draggers who wish to continue groundfishing. Dock space is expensive, and supporting commercial infrastructure cannot be expanded upon, since it is in competition with a growing recreational boat sector. The trend has been towards consolidation of infrastructure and loss of 'social' space as the surrounding area becomes gentrified.

The kinds of impacts being felt by families of large draggers in places such as New Bedford and

Gloucester is not apparent in Point Judith. Fishers are still under stress because of the constantly changing regulatory climate, but appear to be coping by maintaining flexible fishing strategies. The oil spill has also stressed local fishing families, particularly those that rely on shellfishing and lobstering for all or part of their fishing income (Dyer and Burroughs 1996).

Management and fisheries information—a fisher's perspective:

Interviewer: "Do you think that fishermen have knowledge about the resources that are important to the fishery itself?"

Fisher: "Nobody knows better than the fishermen, nobody, without a doubt. For the amount of time that they put out there, there's nobody that has a better idea of what's happening within the fisheries than the fishermen themselves."

Interviewer: "And do you think that information is actually utilized?"

Fisher: "I don't know how much, because I know a lot of it's based on their own surveys. The National Marine Fisheries Service conducts their own surveys, and all their numbers come from their own surveys. Probably more so than using information from the fishermen. But that all gets twisted and the information they get from the fishermen because of the politics involved, because everybody's trying to work things to their own advantage."

Interviewer: "So is there mistrust, do you think as far as the processes are involved?"

Fisher: "Oh yeah, Absolutely. I guess that a lot of times the information that the National Marine Fisheries Service uses for their surveys is really off track, because of the limited amount of time and their methods--just not enough there to come up with accurate numbers to base management on. And then with the politics that come into play between the different use groups and the different fishermen, things get distorted that way. So I guess, yea, there is mistrust in the whole process."

E7. Adaptations and Adjustments to Crisis

As in all of the primary ports surveyed, there is no evidence that the industry is replicating itself or expanding through the introduction of new vessels and support businesses. However, Point Judith fishers are, overall, being able to sustain their level of social yield in the fishery by maintaining a great degree of adaptability to changing regulatory and economic conditions.

The social reproduction of the fishery follows a father-son progression, and fishers are related to each other patrilineally. Even though the history of commercial fishing is short, the kinship ties of fishers in this area are long-standing. Poggie and Gersuny (1978) found that 51 percent of fishermen active in 1971 had surnames found in the 1774 colonial census of the town, as contrasted with 28 percent of textile workers. This is predicted by the Natural Resource Community model, in which relationships to utilization of local resources, whether they be extracted through commercial fishing, farming, or for subsistence purposes, tie individuals to a location through the social and cultural value of a renewable natural resource extraction lifestyle.

Within the sample of fishers there was some variation; 57 percent of lobstermen and 47 percent of

trawlermen have surnames found in the colonial census (Census of Rhode Island 1969:84ff). From the 1971 sample, 73 percent of fishers said they had one or more of their relatives in fishing, while only 16 percent reported one or more of their wife's relatives in fishing.

In 1978, among 116 members of the fishing cooperative, 18 surnames accounted for 47 percent of the members, while one family name, represented by three or more fishers each, accounted for 32 percent of the members. Thus, patrilineal kinship ties have defined the social and occupational networks of local fishers for generations. A recent dockside intercept survey of seven boat captains found them working with a son and/or one other male relative as part of the crew.

One significant change is that women are involved more as crew a dockside support than they have been in the past, with at least one woman boat owner in the port. Another difference with the present fishing populations from the early 1970s is that there has been an influx of first time fishers from URI and nearby communities that have no family history in the industry, and got into fishing because it was an available option. Present recruitment, however, is at a standstill as limits on permits, well established occupational networks, and high start-up costs inhibit new entrants to the fishery.

Other issues include gear conflicts, area restrictions, and competition for resources with the recreational sector. Social conflicts noted by Poggie and Gersuny in 1978 have only worsened since, and their description is apt:

"Although they are circumspect in talking about them, commercial fishermen also have to contend with sports fishermen and pleasure boating enthusiasts as competitors in the social environment. Inshore pot lobstermen in particular view these groups as their enemies, as human predators who interfere with their livelihood. Pleasure boaters frequently violate the rules of the road and damage fishing gear, as well as compete for scarce dock space" (1978:48).

Portrait of an inshore dragger: critical issues

"Frank" is an inshore dragger. He lives in South Kingston, but fishes out of Newport. He feels that the port of Galilee (Point Judith) caters more to offshore vessels, and this is one reason for the decline in the local inshore groundfish fleet (and his decision to change his docking location). He is also concerned about diminishing fishing areas, having one of the largest inshore draggers at 70' and depending on being able to catch a mix trawl. First, the grounds of Nantucket Sound have been denied him through Massachusetts legislation favoring smaller MA draggers targeting the same species, primarily groundfish and fluke. This forced the fleet to move closer to RI shores. Because the area, especially around Block Island, is so limited his tows must follow a certain line (there are many well recorded obstacles along this line that make shortened tow times necessary). Over the years, other gear types, such as gillnets and lobster pots, have increased in this limited area. He and other draggers have attempted to reach resolution on competition with these fishers, but have been unsuccessful. Many of the gillnetters are from other ports, such as New Bedford, and cannot be easily contacted.

Frank has a wife and two children, and is committed to the fishing lifestyle. As with many local RI fishers, Frank does not have a traditional family fishing history. He went to school at URI and got into fishing by doing it part time in the summers. Despite problems limiting his effort, he feels fishing can continue to provide for him and his family. He has no plans to leave the industry, although his wife is taking classes so she can contribute to the household.

E8. Conclusions

Fishers of Point Judith are maintaining their economic viability by taking advantage of a good mix of mid and north Atlantic fish stocks, and by maintaining diversity in seasonal fishing patterns, gear types, and permits held. The result is a relatively economically healthy fishing fleet, but with few new recruits and no new vessels coming into the system. Ties to international markets have kept the inshore processing sector viable even with the declines in groundfish landings. Offshore midwater draggers have also made up for local declines in groundfish landing by targeting high biomass midwater species such as whiting, herring and squid. The immediate future of the fishery in Point Judith looks good, but the lack of recruitment and loss of social and cultural capital through gentrification prevents the industry from expanding, and could accelerate its decline if gentrification intensifies. There is evidence that this is occurring, since the south Kingston area is experiencing a population growth due to high quality of living and benefits of a good school system which is driving rapid land development (Rhode Island Economic Development Corporation). As values of local dock space and land increase, further declines in fishing infrastructure may follow.

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A. Secondary Ports in Maine: Stonington and Down East

We noted earlier that one of the principal changes that occurred in the Maine MGF following the opening of the PFE was the consolidation of the fleet around Portland between 1987 and today. This has been paralleled by a steady decline in the number of fishers engaged in gillnetting for groundfish and, among those who continue to groundfish, a decline in the amount of fishing effort individual fishers devote to ground fishing. The smaller ports north and east of Portland are at once more dependent on fishing for the overall health of the community and less dependent specifically on ground fishing than fishers in and around Portland. Most of the ports of the Down East region of Maine are physically isolated, located along or at the ends of long dead end roads and more easily accessible by water than by land.

Tourist infrastructures remain at incipient levels of development, unlike the small coastal communities south of Portland, and local economic alternatives remain confined to forestry and fishing and the services that supply these industries and those employed in these industries. Generally, tourist infrastructure consists of a handful of bed-and-breakfast

establishments, a few restaurants, an art gallery here and there, and one or two gift shops and book stores. Constraints to developing tourism derive from ecological and cultural sources. Many of these towns have been well integrated into local forest and rocky environments, with little space available for developing tourism further without destroying the very aesthetics that attract tourists to these coastal towns in the first place.

Many long-time residents of coastal towns, particularly those in the fishing industry, oppose tourism on the grounds that real estate development competes with fishing for coastal access and increases the volume of foot traffic along the waterfront. Those who suggest tourism as an alternative to commercial fishing, in any case, ignore several features of tourist development. The just noted competition between commercial and recreational uses of the coast predisposes commercial fishers against moving into the leisure sector; indeed, established social ties to the leisure sector, strengthened by the solidarity that has emerged from past conflicts with commercial fishers, may prevent commercial fishers from the support they require to establish tourist-related businesses. Further, tourist development often quite rapidly begins duplicating services. Finally, most of the jobs in tourism for those who do not own businesses are part-time and low-wage jobs.

Most coastal Maine fishing communities are similar in appearance. They range in size from under 1,000 to around 5,000, although most have populations of under 1,500. Stonington, for example, has a population of around 700, at least 40 percent of whom are either lobstermen or other kind of fishers (locals estimated a lobstering population of 300), and most of the remaining year-round residents engaged in services that cater to fishers. During the summer months, of course, populations in most of these coastal towns increase with seasonal residents (Acheson 1987). Increases in summer time activity coincide with increased commercial fishing and an increase in employment. Figures compiled by the Maine Department of Labor, for example, find that unemployment rates in these regions drop to their lowest levels, usually, during the months of July and August:

These figures show us, first, that some of these coastal regions, particularly those further from Portland (Jonesport and Machias) experience relatively high rates of unemployment even during the summer months.

Table 18: Labor Force Statistics for Down East Portions of Maine, 1994

Labor Market Area	Total Labor Force	Ave UERate	Rate at Low Month
Boothbay Harbor	7,960	5.6%	2.3% in July
Buckport	4,960	7.7%	4.9% in July
Ellsworth-Bar Harbor	19,230	8.3%	3.4% in July
Jonesport-Milbridge	3,550	12.4%	8.1% in July
Machias-Eastport	6,360	12.0%	9.6% in July, August
Stonington	5,030	5.5%	2.7% in August, Oct

This indicates the few alternative employment opportunities outside those tied to forestry and fishing, both predominantly summertime operations.

Often hilly, neighborhoods of coastal Maine towns consist of small frame homes, and very occasionally a trailer or two, interspersed among colonial mansions and larger homes.

These neighborhoods seem to slope down to the waterfronts, where the most dense clusters of businesses and houses stand. Immediately upon entering a coastal town you perceive fishing iconography: ancient wooden captains' steering wheels and capstans, lobster pots, statues of lobsters and plaques with mounted cod outside municipal offices. Nets, buoys, lobster traps and vessels clutter the yards of nearly every house. Approaching the harbor, the orientation of the townfolk toward water becomes especially obvious. Trap and net manufacturers, marine supply stores, fishing cooperatives and marketing operations compete for shoreline with whale-watching firms and transport vessels. Usually one or more municipal piers or private docks extend out into the water, rigged with fish and shellfish buying facilities that are barnlike in appearance. Perpendicular to the main length of the pier are often smaller lengths of floating piers for tying up the 14' to 20' crafts that fishers use to move between land and their fishing vessels; the fishing vessels themselves are moored, offshore, at moorings throughout the harbor.

The ports east and north of Ellsworth and Bar Harbor, including Winter Harbor, Jonesport, and Machiasport, specialize in lobster, sea urchins, and winter dragging for scallops; the infrastructure is designed to land these species. Vessels have been outfitted with ironwork triangles to handle winches for hauling lobster traps or for the scallop rigs. Sea urchins, a relatively new fishery, are harvested primarily by divers, and a few gillnetters in each of these communities land flounder and other groundfish during the summer. Their numbers are dwindling. Licensing data becomes dated relatively quickly, even after three or four years; the Maine Marine Patrolman based outside Ellsworth said, "It [the fishery] changes every year."

A1. Machiasport

This is a small, rambling community, with a firm beach of stone pebbles and a sheltered harbor where several of the lobstermen store and launch their boats. It is a deep water port that currently aids the salmon farming and processing in town. A single factory operates through most of the year, providing a low level of employment to the town. There is little other industry beyond this.

This port is dispersed and spread out, with smaller boats that are trailered behind pick-up trucks and stored primarily at the fishers' homes. The pots are also stored at the homes of the fishers, unlike the other ports, where pots are clustered at cooperatives and fish dealers. Most of the fishing vessels are small, for targeting lobster, generally under or around 45' in length.

Two lobster fishers at Buck's Harbor, just east or south of Machiasport, said that there were a few gillnetters in this area and in Jonesport during the summer, but that the only dragger during the winter usually targeted scallops. There is no large ground fishing fleet in this area.

A2. Jonesport

Seemingly more densely populated than Machiasport, this port receives shelter, in part, from Beals Island. This is a fairly densely populated hamlet, with several sheltered facilities, including a long jetty. We visited on a February day and counted 38 boats moored out in the water, away from shore, between a large metal structure and the pier. Another 16 and another 5 in other places inside the harbor. There are at least four sheltered areas with clusters of boats.

Across from Jonesport, connected to the main point by a short bridge, is Beals Island--clearly a lobstering island, with lots of traps, a couple of boat builders, and a few other marine-related businesses, including the following:

Great Mass Seafood (Beals Island)

Richard's Boatshop

Osmond's Boat shop

Stan's wire trap shop

At a fishing cooperative four fishers unloading sea urchins reported that there were, perhaps, six gillnetters in this area, but that most of the gillnetters had been driven into other fisheries, principally scalloping and diving for urchins, because of marine mammal legislation.

A3. Southwest Harbor

Close to Acadia National Park, this community contains much more tourism infrastructure than the other ports, yet it was here that there was a recent controversy surrounding a whale watching firm: later, a Portland told us that in this case it was more of an access issue, that there was much vehement opposition to the whale watching coming in because they would take up too much of already precious harbor space. Conflicts such as this, of course, would hinder an easy transition into tourism.

Two fishers at a scallop/ lobster buying station reported that there was only one fish dragger left in Southwest Harbor and another in nearby Bar Harbor. Both groundfish from medium sized vessels. Most of the fishers here rely on summer lobstering and winter scalloping. Scalloping season begins in November and runs through April; lobstering begins in March or so, and runs through to November. Fishers can catch lobster during the winter, but run the risk of having their traps dragged up by scallopers. This prevents lobstering except in areas where scallops will not drag because the substrates would damage their nets. Dealers here reported that those fished for lobster during the winter time placed traps on rocky ledges, where scallopers won't drag.

The vessels that do drag for fish around here are not going as far as Georges Banks; they are more closer to shore draggers. The fisher interviewed here, as in other ports, told us that the regulations had already dismantled much of the gillnetting portion of the groundfish fleet, and they had switched to other fisheries. One of these, of course, was sea urchins. In particular, lobstermen who used to rig their boats with "gallows," a rig that could make a lobster vessel a dragger, now have gotten into diving (dry suits, mainly) for urchins. They only drag for urchins where tides are too strong to dive, but this is viewed as ecologically destructive.

A4. Stonington

Of all the ports visited between Machiasport and Rockland, the most obvious gillnetter's harbor was Stonington. In Stonington live the past and current presidents of the Maine Gillnetters' Association, and the port is home to Commercial Fisheries News, a monthly publication dedicated to fishing issues. Its former editor is currently the state Commissioner of Marine Fisheries. The port is a principal lobster landing center with some scallopers, urchin divers, and ground fishers who utilize gillnets. No big rollers with nets adorn boats in Stonington's harbor, but several gillnets remain piled on a dock in the center of town. Physically, Stonington sits at the end of a long dead-end road. The village slopes downward to cradle the harbor. Three large piers--one a recently built public pier for off-loading fish--jut out into the harbor and marine related businesses cluster at the land ends of these docks. There are some indications that the port has been shifting away from its emphasis on fishing, yet without any clear direction as to what, exactly, will take fishing's place. According to a local fisher, in recent years the port has lost a hardware store, a clothing store, a drug store, and two welders, which were replaced by two art galleries and two souvenir shops.

The groundfishers of Stonington have already suffered severely from regulatory changes associated with Amendments # 5 and # 7, as well as marine mammal legislation issues. Changes taking place over the past few years chronicle a fleet that has not only shrunk in size but has struggled with alternative fisheries, attempting to move into the already crowded lobster industry in particular as well as other fisheries such as tuna and urchin diving. Before 1995, there were seven or eight draggers operating in Stonington and another five operating in nearby Bar Harbor, with upwards of 42 gillnetters between Stonington and Machiasport. Over the past two seasons, however, these figures have fallen to one dragger operating out of Stonington, along with 18 gillnetters.

Gillnetting for groundfish used to be primarily a summertime activity, lasting from May to October and thus overlapping with the lobster season. Typically, the fishers would leave the port in the evening, set their nets between midnight and 2:00 am, and pull them up the following evening around the same time. They typically operated from 30' to 40' vessels, using 3- to 4-man crews. As in Gloucester, crew sizes have shrunk with the restrictions on times and areas, and crews now are more likely to be 3 than 4. During the winter, gillnetters, traditionally, would scallop or shrimp, but the bulk of their income came from groundfish.

As in other ports, Stonington fishers are having trouble recruiting crew who are willing to fish day in, day out, through the heavy fishing season. Only the lobster fishery is reproducing itself at a healthy pace, with ground fishing crew working a few days at a time and then laying off after being paid, unwilling to take the business seriously because of negative perceptions concerning its future.

Marketing of fish is conducted at the municipal pier, but is dominated by two men, one who buys and another who trucks the catch to more distant markets. According to a local fisher's wife, all of the fish landed in Stonington is trucked to Nagel's Seafood in Boston. Because of infrastructure limitations--the dead-end road mentioned earlier--locals view marketing as a primary problem.

In adjusting to changes, fishers have moved into the winter urchin fishery as well as experimented with other fisheries. There are few alternative occupations in a place like Stonington outside of fishing, and the retraining center established there has toyed with aquaculture and other alternatives without much success. Because of concerns about crowding in the lobster industry, groundfishers fear that they will not have the history to enter the lobster industry, especially given recent zoning proposals before Maine lobstermen. This model, currently being considered for the lobster industry, may well serve as a model for community based fishery management in other fisheries (James A. Wilson -- Univ. of Maine, personal communication). It consists of the following:

1. **First, Maine recognizes regional distinctions between fisheries in state waters based on historical and ecological characteristics.** These regions reflect groups of fishers who are similarly placed with regard to their interactions with the marine resources. That is, they practice similar mixes of gears and target species and have, historically, interacted with fishers from other communities within the zones, to define, protect, and defend their territories (Acheson 1987).
2. **Maine recognizes five zones.** Each of these zones has its own regional council who are elected for three-year, staggered terms through a process that involves: a) identifying stakeholders with current licensing data; b) voting in annual elections. The number of council members varies by the size of the zone, with council members representing 100 or fewer license holders.

3. Each regional council develops proposals for changes in fishing rules which are then voted on by all fishers in the zone. Changing any fishing rule requires that two-thirds of region's fishers agree on the change. Rules that are decided upon by regional councils include those governing numbers and types of gear and time regulations (seasons, numbers of days one can fish, etc.). The zone model allows for sub-zones to exist within zones for finer regulations that recognize more localized circumstances.
4. Perhaps most important, the Maine model is one of participatory co-management, with state entities--specifically, the Marine Fisheries Commission and the Department of Marine Resources--and fishing interests coming together to develop proposals for changes in fishing regulations. This consists, essentially, of a "bottom-up" meets "top-down" model in which lines of communication between the state and fishing groups, and among fishing groups, have become institutionalized.
5. Fishers can fish in more than one zone, but must abide by the most restrictive zone's regulations. This solves problems of fishers from different communities coming into distant waters with gears and fishing methods that local fishers deem destructive to the resource.

Because these councils, if instituted, will establish terms of fishing in each zone, Stonington groundfishers fear that they may be discriminated against when attempting to apply for lobstering licenses or to increase their lobstering efforts. In any case, the proposed establishment of zones and regional councils is an indication that entry into the lobstering industry, historically highly territorial, will be even more difficult in the future.

B. Portsmouth, New Hampshire and Southern Maine Ports

Despite its seemingly ideal location between the southern coast of Maine and Gloucester, Portsmouth is neither a large MGF port nor a great center of commercial fishing activity. Much of the city's commercial fishing activity is based across the river from Portsmouth, in Kittery, Maine, and consists primarily of lobster vessels. Development in Portsmouth has emphasized commercial uses of the port that do not necessarily involve commercial

fishing, including shipbuilding and international trade. Along its waterfront are several restaurants and historic monuments that reveal a recent emphasis on tourism--particularly heritage tourism--but a large commercial fleet with active off-loading facilities is not prominent in these activities. Our efforts to survey seafood dealers and processors in Portsmouth about groundfishing met with little interest and less success, indicating that the MGF has no substantial presence there.

Portsmouth and the ports between Portland and Portsmouth, along the southern coast of Maine, are more obviously centers of tourist development than centers of commercial fishing. Ports such as Ogunquit and Kennebunkport still maintain their lobster fleets as essential to their character, but those few groundfishers who moor their vessels among the smaller vessels land their fish primarily in Portland, at the display auction, as was discussed in detail in the section on Portland.

C. Provincetown, Massachusetts

CI. Overview of the Port

Provincetown (known by locals as "P'Town") is a historic port with the second deepest harbor in the United States. Unlike Point Judith, the fishing fleet of P'Town has concentrated its efforts on dragging, and has not significantly diversified into other fisheries. The majority of the fleet are eastern otter trawlers, complemented by a small fleet of inshore angling vessels. A total of 18 vessels were counted at the docks, with their numbers equally divided between steel and wooden hull vessels.

The importance of fishing to historic P'Town is reflected in murals in the town hall showing fishers bringing in the catch. Provincetown once had a booming fleet that took advantage of its proximity to local fishing grounds to catch large quantities of groundfish. Fish were processed and shipped to Boston and other markets, and a thriving processing sector dominated the local docks. About 15 years ago, local respondents report that the industry began to experience a downturn as nearby fish stocks were depleted and area closures such as Stellwagen Bank limited the opportunities to fish near shore.

Another disadvantage of P'Town is its geographic location. Although it has the second deepest natural harbor in the world, being at the northernmost tip of Cape Cod, its distance from major fish markets has made it difficult to compete with ports having better access to

ground transportation such as New Bedford and Gloucester. In the summer time, the one road going into an out of P'Town on Cape Cod is regularly clogged with tourist vehicles on their way to visiting the beaches or traveling to the art and tourists shops that have come to dominant the P'Town economic landscape. In the winter time, bad storms can close down the one road making regular access difficult. Processing plants closed down and the traditional fishing fleet aged while gentrification drove the economy towards tourism:

"It used to be real wild around here. Fishermen had bars to celebrate in and small grocery stores where you could buy supplies on credit. That is all gone now. Now it is all regulated and full of tourists. Fishermen don't matter that much anymore."

Original fishers of P'Town were English and Scottish immigrants, eventually replaced by Portuguese immigrants who came to dominate the fishing industry. Extended Portuguese families worked in occupational enclaves based on 6-7 person crews. They didn't significantly diversify their economic activities and thus remained somewhat culturally and linguistically isolated from other residents. Migration between P'Town and Portugal, as with the fishers in New Bedford, was common. Many of the more successful fishers left P'Town over the last 25 years to join the fleet in New Bedford. They were replaced by newer immigrants who would take over aging vessels and "have a go at it." However, others stayed and have fished out of P'Town for up to 40 years (key respondent, elder fisher). Because of the outmigration of highliners, and the ethnic insularity of the fleet, there was really no impetus (or significant capital) to diversify fishing strategies (key respondent). Those coming into the fishery took up with what was available, and had little motivation to change.

C2. The Infrastructure and the Fleet

The town pier has two large docks that extend for approximately 300 yards. The construction is wood and cement and is sturdy enough for 18-wheeler truck traffic. At the end of the pier are two fish suppliers: Oceanic Seafood and Whaling City Seafoods. The docks are in good condition, and the Chamber of Commerce has been actively promoting the quality of the harbor for berthing of large offshore (foreign) vessels. The end of the pier is dominated by restaurants and local shops, but there is little evidence of businesses dependent on the fishing industry.

Provincetown has the most dilapidated fleet of any MGF port. Most of the vessels observed (13 out of 18) were old eastern rigged otter trawlers. Half of the fleet were of wood construction, while the other half consisted of rusty steel vessels. The fleet is a

combination of scallopers and otter trawls ranging from 45 to 68 feet in length. The otter trawlers have from 2-6 crew, while the scallopers have crews up to seven (NMFS regulations prohibit more than seven crew members on scallopers). The isolation of Provincetown insures that all fishing families live in local residences. Some of these families are having difficulties with their mortgages as they struggle to survive in the fishery. As in New Bedford, some of those in economic stress have returned to Portugal. The condition of the fleet is summed up by a welder who has worked on them for many years:

"The boats are in very dangerous condition. They don't have the money to fix things - to take care of the electrolysis problem- so they just paint over it. There are some boats I wouldn't go out in, or even work on now. I was in one boat the other day, and they had painted over some rusty pipes. Now, the pipes looked new, but when I put my hand on one, it broke off. It was pure rust. Those boats are not fit to go out in, but they are out there fishing, risking their lives because they have no choice."

The age and condition of the vessels is the primary difficulty facing local fishers. Over 95% of vessels have no insurance and many are unsafe to be on the water (key respondent, Assistant Harbor Master). Over the last five years the Assistant Harbor Master claims many vessels have sunk, some of them right at the dock. Sunken dockside derelicts have been refloated and reused if not sold outright. Of 28 draggers/scallop vessels on the Harbor Master list, three have been sold and one is up for sale. Because fishing has been so poor, and regulations so restrictive, fishers can only afford to fix the most pressing repairs, ignoring others which could be life-threatening on an extended fishing expedition. The condition of the fleet has thus cut into the trawl time of the more problematic vessels. Captains are afraid to venture far from shore for extended periods because of the threat of sinking.

The nearest fishing ground is Stellwagen Bank*, which has been "fished out" for years. Also, the Provincetown fleet must compete for Stellwagen fish with the North shore fleets of Boston and Gloucester. This competition forced P'town vessels further and further off shore, but because of the continuing declining condition of the vessels, they can no longer risk going far, especially in marginal weather.

* Note by Clay: For information on the Stellwagen Bank National Marine Sanctuary, see <http://www.nos.noaa.gov/ocrm/nmsp/nmsstellwagenbank.html>

Besides the 28 larger listed vessels, there are 19 smaller jig boats. Of these, 15 are longliners, two gillnetters, and two lobsterpot fishing. Presently, only 17 of the 28 vessels are in working condition. The smaller boats are in better financial shape, since they are less costly, but also since they are not expected to provide direct support for more than 1-2

fishers and their families. However, all vessels and fishing families are marginalized in a fishing community that is experiencing the worst possible combination of marketing, fish stock, and production capital losses. P'town is the epitome of what can go wrong in a port highly reliant on the MGF.

Another issue which may further impede the viability of fishing is the construction of a sewage outfall pipe from Boston's new sewage treatment plant. The outfall pipe carries fresh water and dumps it onto Stellwagen Bank. Any hopes of rebuilding a fish or scallop stock there will be lost once the pipe is operational. One fisher of 40 years experience was very encouraged by the recent comeback of scallops on the Bank, as well as the recuperation of the local lobster population, which serves as a secondary catch on draggers. His assessment of the outfall pipe:

"It will be the end of us." An environmental engineer who worked on aspects of the outfall pipe remarked about its impact on the fishery: *"the ecosystem will certainly be changedthey would be dumping millions of gallons of freshwater onto the Stellwagen Bank."*

C3. Adaptations to Crisis

The major problem of the port is unemployment and underemployment of former fishers. Day-to day survival is a struggle as fishers and their families cope with declining income (or no income) and increasing uncertainty because of fishery restrictions such as Amendment # 7. However, given the fishing and fleet conditions, restrictions on days at sea are less of a problem now than just getting out to sea at all.

One possible avenue for fishers to improve their economic condition is through the retraining programs being offered by the Fishing Family Assistance Center. The optimistic motto of the Center is: *"Serving fisherfolks, their families, and related industry workers adjusting to changes within the fishing industry on Cape Cod, the Islands and nearby region."*

The Chapter on Gloucester discusses critical issues that include the training centers on Cape Cod. In P'town, the primary barriers to the success of the program are as follows:

P'town fishers don't see the centers as an opportunity to seek a better life, but

as a program designed to take away their opportunity to earn a living fishing;

the program was not designed with any understanding of local fishing culture and life values;

ethnic and linguistic barriers exist that limit the participation of male Portuguese fishers; and

the opportunities for retraining are limited by economic opportunities in the region.

Participation in retaining has been scarce, and although the P'town retraining center could not give exact figures, few fishers are noted to have been retrained, with the majority of those taking advantage of the program being the wives of fishers. Opportunity issues exist even for the wives of fishers who seek retraining. As one center worker expressed, "how many cosmetologists can you have in one town anyway?" A fisher's wife active in the community who works at the Chamber of Commerce describes the situation as grim:

"The retraining program is great- but where are you going to find a job? Also, people who have fished their whole life cannot just give it up to do something else. I know they are training people to be nurses' aides, but I can't see my husband giving up fishing to do that. There are no jobs around here - I know there is nothing because I work at the chamber and I know how hard it is - there is nothing now. If you do get training, where are you going to get a job? You would have to relocate, and if you have a house and family ties here, that would be tough. This might be OK for those who can easily relocate like crew members - but not for captains and owners. The boat is like part of the family. For fishers like us, it is not an option to try something else. We have decided to try to ride it out, and hope things improve."

D. Newport, Rhode Island

DI. Overview of the Port

Newport is a historical port dedicated to tourism and recreational boating but with a long

[and persistent commercial fishing presence.](#) Before the development of the docking facilities at Point Judith, Newport was the center for fishing and shipping in the state. In 1971, 57 percent of all Rhode Island commercial fisheries landings were in Newport, but Point Judith surpassed Newport in importance by 1973, and now is the dominant commercial port in the state.

[Tourism in Newport started as far back as the 1700s.](#) Visitors included southern plantation owners who stayed in Newport to escape the heat of the summer. By the 1830s, tourist hotels began to dominate the shore side landscape. The famous "cottages" of Newport were built by industrialists seeking to outdo each other in displays of ostentatiousness. The present tourist economy is centered on year round activities with the highlights being summer and sailing events. The Americas Cup races are regularly held in the area, attesting to the importance of the pleasure boating industry.

[Besides tourism, the East Bay Navy base has a major economic impact in the area.](#) The base employees thousands of local civilians in service roles. The service industry also caters to a large retirement community. Many naval personnel familiar with the area from periods at the local War College or at the command schools select Newport for retirement. They bring money into the community as retirement pensions and contribute to the support of many service-oriented businesses as significant consumers.

[The history of the fishery and its present state up to 1981 have been thoroughly described by Bort \(1981\).](#) We give an overview of the fishing history and infrastructure here, and then focus on the fishery as it now exists.

[Fishing has always been an integral part of the local economy, although not of the stature of tourism and other components.](#) It does not make much sense to talk of the degree of community "dependency" on fishing in Newport, for the existing 'community' could do quite well if commercial fishing disappeared altogether. A different perspective is to think of the fishing "community" as a regional contributor to the commerce of the groundfish fishery, and as a means of providing support to approximately 200 families with a sustainable livelihood while they contribute a high-quality food product to the commerce of the region and nation.

[During the 1700s to early 1800s, fishing was an important part of the local economy.](#) Historical records mention fish drying stations and fisheries. The quantities of fish are not mentioned, and fisheries as an activity declined by the 1700s with the rapid development of Newport as a slave trading and shipping center.

Whaling was practiced for several decades in the 1770s, but was never as important as it was in ports such as New Bedford and Nantucket. By 1785, the whaling fleet consisted of 50 craft. However, by the late 1850s, most of the craft had either moved to New Bedford or entered other pursuits (Field 1902: 482-483).

The period from 1800 to 1930 saw the development of the indigenous (bay and inshore) fleet. Fishing effort was concentrated on groundfish stocks that could be reached in a day, fished, and then landed on the dock. Most fish, with the exception of menhaden, were taken in staked and floating fish traps and weirs. This was also the period when industrial fish was a major component of the economy. For example, in 1889 in Newport and other Rhode Island ports, fish reduction plants for menhaden, and fish drying operations for cod and other groundfish processed 127 million pounds of fish, 89 percent of which were menhaden (Olsen and Stevenson 1975:53). This fishery collapsed in the 1930s, and the fishery transitioned towards groundfish trawling. During the 1920s, marine diesel engines effectively extended the range and fishing time of commercial groundfishing vessels using otter trawls.

D2. The Infrastructure and the Fleet

Newport has one of the best natural harbors on the Northeast. It provides excellent protection from rough weather, and is deep enough to provide berthing for US naval vessels. There is only one wharf area that is presently used by fishers. It is leased by the state to the Newport Shipyard Company. This stone filled wharf is adequate to service the 20 vessels that regularly land groundfish in Newport. In 1981, major fish buyers included Anthony's Seafood, Aquidnick Lobster Company, and Parascandolo and Sons. Anthony's is no longer in business, and Parascandolo markets all groundfish landings that come into Newport. Fish are not sold or processed locally, but ice packed in trucks to Boston, New York, New Bedford, and markets south. Decisions are made on where to ship the fish based on equitable pricing and demand. Ice is supplied to these firms by the Eastern Ice Company located in Newport. The Tallman and Mack Company, a private firm reported by Bort (1981) to operate fish traps between April and November out of Newport, is no longer in business.

Newport's groundfish fleet has dramatically declined over the last twenty years. The decline has been spurred by increasing property values restricting fishing industry infrastructure and competition with recreational vessels constricting wharf space. No new boats or new shore side fishing businesses have come into the fishery in the last twenty

years. The local waters of Narragansett Bay are overfished, and nearshore grounds off the coast and nearby Block Island have experienced significant declines in groundfish. Factors forcing a decline in groundfishing are not recent, but has been ongoing for some time. In 1981, Bort writes:

"The general direction of the community's development does not bode well for the future of fishing. Neither tourists nor pleasure boaters are typically enthusiastic about sharing a harbor with commercial fishermen. The stereotypic grizzled old man handling from a dory is romanticized. The modern steel trawler is viewed as a source of odor and noise and as competition for space. The fishing industry is far down on the list of economic inputs to Newport, and probably also on the community's list of priorities" (1981:89-90).

Bort was correct in this prediction. There is still a degree of prejudice by the Newport community against commercial fishers (key respondent, Office of the Harbor Master), and the fleet has declined dramatically. In 1977, 164 boats made landings in Newport. Of these 49 were from Newport, 45 from New Bedford, and the remainder from as far north as Gloucester and as far south as Virginia (William Murphy, National Marine Fisheries Service , Newport, RI). In 1978, only 91 of these vessels had returned to Newport.

In 1996, the number of MGF permits held by Newport commercial vessels was 16, with a total of only 20 vessels landing groundfish in the port. Of these, only 2 fished in the bay, and another 2 fished in nearshore waters, with the remainder fishing 7-10 day trips on grounds north and south of Rhode Island. Using the 1981 figure of 91 vessels as a benchmark, this represents a 78% decline in commercial fishing vessels landing in Newport over a fifteen year period. Similar declines have been reported in Gloucester and New Bedford.

The greatest decline has been in the indigenous, or bay and inshore fleet. After WWII, the indigenous Newport fleet consisted of 20 vessels. In 1981, this number was down to only eight, and in 1996, only four. Declines in nearshore stocks, pollution impacts, competition with stationary gear, and area closures have made inshore groundfishing more difficult. Overall, the Newport fleet is more dependent proportionately on groundfish than the more diversified fleet fishing out of Point Judith. All of the vessels are essentially groundfish fishing, with some having the capacity and permits to fish squid (*Loligo*) as needed in order to maximize the benefit of days at sea limits.

Despite these difficulties, local fishers and fish marketers feel that the remaining fleet

represents a stabilized situation:

"These guys that fish out of here, they are doing OK - they're holding their own. Prices are down right now with all the foreign fish being shipped in, and its rough. But they're going to make out OK and survive. When they have to, they can switch over to fishing for squid, and that gives them some flexibility" (key respondent, Newport fish marketer).

The number of fishers is estimated at 4 crew per boat, with 20 boats, giving a total captain and crew population of approximately 80 fishers. The local groundfish marketer, Parascandalo, employees 15 workers in the plant and 4. The operation uses twelve 18-wheelers plus five straight bed trucks. The total number of groundfish fishers and immediate support personnel comes to approximately 100 individuals and their families. This is comparable with the estimated numbers and fleet size for Montauk, NY, which had 24 vessels in operation and an estimated 100 families dependent on the industry. Unlike Montauk, with 76 MGF permits in port, there is a close match in Newport between the number of MGF permits (16) and the number of vessels that land groundfish at the port (20).

D3. Adaptations to Crisis

Despite the emphasis on tourism, and a noticeable decline in the commercial fishing presence, the 20 vessels of the groundfishing fleet of Newport are in good condition, and "holding their own" in this period of increasing regulation of the MGF. However, as in other ports, it does not appear that the social, economic, and cultural capital which comprise the fishery are being reproduced. MGF permit holders in Newport will eventually have to make the decision to retire their permits to or pass them on to others as vessels age and new recruits do not take up the occupation (a decline in the social yield). The questions that remains for Newport are (1) will the community support the presence of a new generation of fishers, (2) will a support infrastructure survive to allow them to fish, and (3) will anyone be interested in joining a profession that is both dangerous and increasingly economically risky?

E. Montauk, New York

E1. Overview of the Port

Montauk is an isolated community at the tip of Long Island, New York. It has no major light industry or other capital generation sources besides commercial and recreational fishing and related tourist activity. Thus, we classify it as Small Scale NRC. Unlike Gloucester, Montauk has never had a large commercial infrastructure dedicated to ground fishing. It is given special consideration here because the high number of reported MGF permits gave investigators the initial impression it represented a major groundfishing port.

In Montauk, baymen originally fished for subsistence and barter using weirs and inshore seine nets. The vessel of choice was the piragua, a small sail- powered craft for fishing in nearshore bays and inlets. Shellfish fishing was also important and remains a seasonal summer activity. Although baymen have disappeared in Montauk, some still follow this simple lifestyle in nearby Shelter Island, Snug Harbor and Freeport.

Shore seining for menhaden ("bunkers") was an early commercial activity that supported over thirty "seine gangs" in the early 1800s. Shore gangs were replaced at the turn of the century by menhaden steamers using haul seines. Women used to play an important part in the fishery by helping out with the beach (seining for alewives). They also worked in marketing and processing of bunkers. Bunker factories made millions for their owners, and fish were converted into fish meal, fertilizer, and oil. Local menhaden stocks were eventually depleted, and the bunker industry lasted until 1968 when the last fish factory-- the Promise Land, closed.

Despite the closure of the bunker factories and a small groundfish fleet, Montauk remains New York state's most important commercial fishing port. In 1993, offshore draggers harvested about 20 percent of all whiting landed by New England and Mid-Atlantic fishers (Drummond 1995). A large portion of the catch, which also includes 10 percent of the illex and loligo squid landings in the Northeast, is sold for export.

E2. Demographics of the Community

Commercial and recreational fishing are the primary activities in Montauk, with the community business sector being geared to servicing these two fishing sectors. The summer season is also important for tourists, and summer rates for hotels and other seasonal housing reflect this. The average age for residents of Montauk is 37.9, while the number of people per square mile is 172.1. The average 1990 income was as follows:

Household \$31,849

Family \$39,292

Non-family \$22,417

Per capita Income \$20,502

As of February 1996 the total population of Montauk was 3,001 (Chamber of Commerce). Census Bureau data give a total 1990 population of 2,813. Of these, 798 claim Irish ancestry, with other dominant groups being German (640), Italian (408), English (252), Polish (174), Russian (158), and Yugoslavian (97). There were 1,673 individuals employed over the age of 16.

There are approximately 290 residents listed in the Census Bureau report that list their occupation as "fishing". A local community leader in the recreational sector estimated that 100 resident families make their living in recreational fishing services. With 24 estimated commercial vessels averaging three crew each, there are approximately 72 families that are directly dependent on the production side of commercial fishing. This does not include those in the processing, transportation, and infrastructure support sector (e.g., fish market owners/operators, dock workers, welders, fish processors, carpenters).

E3. Seasonal Fishing Patterns

The winter community is small and insular, consisting of commercial fishers and their families, small businesses, and local charter boat owners/operators. Some of the recreational fishers will overwinter in Montauk or nearby East Hampton. Many others will drydock their vessels and spend the winter months elsewhere. The height of the fishing season begins around mid-March after Saint Patrick's Day, which is marked by a celebration of the rites of spring and the renewal of fishing.

Fishing is most active June to September, and least active December to February. The winter fishery targets tilefish, pollock and cod along the shelf. In the summer, a large charter boat fleet goes after tuna. Many charter boat owners/operators also hold groundfish permits. A key respondent explained that this allows them to take groundfish for personal use and for customers when tuna is scarce. Small landings of groundfish are sold to local restaurants or used for subsistence purposes.

Targeted groundfish include summer flounder (fluke), cod, pollock, and yellowtail flounder. A summer fishery for yellowfin, bluefin, and big eye tuna is conducted by a day and charter boat fleet. The importance of the recreational sector has been steadily growing as recreational fishing pressure increases and as some commercial fishers convert their boats for charter fishing and whale watching.

Montauk is also home of a productive tilefish fleet. Tilefish are caught during the fall and winter months by longline in deep water at the edge of the continental shelf. Montauk led the Northeast in tilefish landings in 1993 with 2,200,000 lbs valued at \$2.75 million. Tilefish are sold in restaurants in New York or bought by the Japanese to make *sashimi*. One tilefish operation consisted of three boats owned by two brothers. Each boat had two crews of three deckhands and a captain. They would fish the deep water valleys off of New Jersey for ten days, return, and rotate out with another crew.

E4. The Infrastructure and the Fleet

The docks are a couple of miles away from the town's main street. Around the docks are a number of associated industries such as restaurants, fish markets and marinas, with most of these businesses closed for the winter season. There are four marinas, three party boats and eight charter boats with posted telephone numbers at the Chamber of Commerce. Marinas which cater to the recreational sector include the Montauk Marine Basin, the Montauk Yacht Club, Uihlien's Marina and Boat Rental, and West Lake Fishing Lodge. Commercial vessels are located at two city docks opposite each other on the harbor. One is located near two fish markets and one next to the Coast Guard station.

Most of Montauk's fish are packed out at four commercial facilities: Inlet Seafood, a fishing cooperative; Gosman's Dock; Montauk Fish Dock; and Deep Water Seafood. Except for Inlet Seafood, which opens after Saint Patrick's Day for the spring-summer season, there is little local processing and sale of fish. Some fish does go to local restaurants during the summer.

The commercial catch is shipped to Fulton's Fish Market in New York City. Fish are generally shipped whole frozen. In the past, there have been problems with the legitimacy of the market. Although a precise number of boxes (of fish) were sent to Fulton, Fulton claimed to receive a lesser amount in many instances. One key respondent noted: *"those practices have changed since the government take-over of the market."* There are few marketing alternatives for fishers, and Fulton's continues to be the primary destination.

Areas previously dominated by baiting shanties near the state docks are taken over by whale watching and charter boat operations. Baiting longlines is now carried out on board by deckhands:

"Fifteen years ago there used to be bait shanties here, but now they are all gone. You can see the whale watching and charter boats all along the docks where the bait shanties used to be. We used the bait to fish longlines. Now, we fish for squid and bait our hooks by hand on board. We fish deep water for squid and tilefish, because the other species such as flounder are played outmost of the inshore fish are gone." --Commercial Fisher

Even though Montauk ranks third in overall number of ground fishing permits today, in 1991 it did not even register in the top 25 ports in number of permits. This is a reflection of the purchase* of permits in the years after 1991 to insure access to the fishery. It also indicates how counting registered fishing permits is not a good indicator of the number of commercial vessels in a port, nor necessarily of catch effort*.

*Note by Clay: There are currently no fees for acquisition of any Northeast federal fisheries permits.

*Note by Clay: NMFS calculations of current and past effort rely on landings data rather than permit data. Permit data are sometimes used in conjunction with landings data in order to estimate latent effort -- effort which could move into the fishery in the future if conditions changed.

As of 1995, there were forty reported commercial vessels in Montauk (Drumm 1995). However, according to a Coast Guard office and field counts of vessels, the functional ground fishing fleet consists of only 24 vessels, not 40 as reported by Drumm (1995). A 1996 NMFS permit file puts the number of commercial vessels counting Montauk as their port city* at 76. This includes all types of commercial MGF permits. Of these, 46 count Montauk as their home city, 27 other New York cities and towns while three reside in other states, including New Jersey, Connecticut, and Florida. However, the total number of groundfish permits held is 132.

*Note by Clay: NMFS permit data include self designations by the vessel owner of the vessel's home port and primary port of landing. These may or may not be the same port.

In February, a total of 18 of the commercial fleet of medium to large scale vessels ranging from 32 to 90 feet were counted at the dock in February, and another six reported out fishing. All commercial vessels observed were trawlers with the exception of two lobster vessels. Party boats, tuna head boats*, and whale watching boats dominated the drydock area.

*Note by Clay: "Head boat" is another term for party boat, trips where the payment is per person (per head) rather than a charter of the vessel by a single group or individual.

Fishing *effort* off Montauk and on commercial stocks targeted by Montauk fishers (e.g., *Loligo*) is increasing somewhat from migration of vessels from other ports since the closure of portions of the Georges Bank. This has caused some concern and conflict between local fishers and these "outsiders" (key respondents--two commercial fisher, and Drumm 1995). A key respondent reported that the large boats from the New England fishery now fishing out of Ocean City, Maryland are directly competing with the Montauk fleet for whiting, squid and other species.

There has been a transition from commercial to charter boat/recreational fishing with the decline of local fishery stocks. Part of this conversion includes a shift of effort into tuna fishing, which is seen as a viable alternative as groundfish fishing has become less lucrative in the Sound:

"I switched over to tuna because it is easier to make money. You can make a lot of money catching tuna, and you don't have the same overhead as with groundfish. Also, if you take out guests on charter, they don't have to catch a fish to be happy."

--Former Captain of Groundfish Fishing Vessel

E5. Adaptations to Crisis

A major concern and source of potential conflict is the competition between the stabilized commercial fleet and an expanding recreational sector. The sportfishing industry on Long Island contributes about \$1.1 billion to the economy, while commercial fishing contributes a yearly average \$54 million in seafood for public consumption. There are an estimated 174,000 saltwater fishing households on Long Island, and within the three mile limit, recreational catches of fluke, bluefish and scup regularly exceed harvests by commercial fishers (Fagin 1994). Recent state laws include a series of bills that ban trawling near Long Island inlets and some other prime fishing areas. The prime purpose of the law is not to conserve fish but "to help marina operators, bait shop owners and others by making more fish available for sport fishermen" (Fagin 1994:A51).

Commercial fishers are also concerned over the level of pollution in nearshore waters. Algal blooms, including "red tide," have wreaked havoc with bay waters and shellfish. In

1994, concerns centered around dioxin pollution and other pollutants which were forcing fishers offshore. A song written by Billy Joel ("The Downeaster Alexa") describes how Montauk fishers have to travel farther and farther off shore to make a catch because of environmental problems (Swift 1994).

Avoiding pollution and abiding by nearshore restrictions means longer trips at greater distances offshore. Fishing farther offshore has increased risk for those who traditionally fished the Sound, and two local baymen died at sea in 1993 while fishing far from shore. Traditional fishing cycles of 2-4 days were tied into "making market." With trip lengths increasing to 5 days or more, including greater transit distance and costs to reach the grounds, it has made earning an income more unpredictable. A local crewman explains: *"We have to fish with the cycles - when markets open up to buy fish--if we can't do this it makes it difficult to make a living - your income becomes very erratic."*

In response to such events and economic concerns over fishing families, the Montauk Emergency Fishermen's Fund was initiated in 1993. The purpose of this fund is "to take care of fishermen and their immediate families who experience loss of life at sea, medical hardship, or severe economic hardship" (Fund president).

Communication with management was expressed as a lack of understanding of what fishers and fishing was all about. Interviews with local commercial fishers indicated a frustration with the management process, and that fishers felt their concerns were ignored even when they did have a chance to speak:

"We hold our local meetings in a room above the firehouse. When the state reps come by to listen to us, they nod their heads a lot but nothing is ever done about our concerns. We don't see the situation the same- there are more fish out there than they say Those public hearings are just a rubber stamp so they can go ahead and do whatever they want anyway."

--Long-time (30-year) Commercial Fisher

E6. Conclusions

Given the isolation of Montauk, with few options other than marine resource utilization, this community is highly dependent on sustaining its commercial fishing enterprise. As in other secondary ports in this study, the commercial groundfish fishing sector in Montauk

does not appear to be expanding, nor does it appear to be reproducing itself through replacement of old vessels with new, increased processing capacity, or increasing social yield (the number of fishers who sustainably participate). Declines in all of these areas are being hastened by the growth of the recreational sector, increasing fishing costs, pollution impacts on stocks, and regulatory restrictions. Yet, the expansion of fishers into new fisheries such as tilefish, and switching to tuna fishing and other strategies (e.g., whale watching) has given the commercial fishing community more flexibility than in larger ports such as Gloucester.

F. Cape May, New Jersey and Ocean City, Maryland

Situated at the southeastern tip of New Jersey, at the mouth of Delaware Bay, Cape May has long been a departure and arrival point for the well-traveled Cape May, NJ to Lewes, DE ferry, a transportation link between the cities of the north and the Delmarva Peninsula. Among nearby cities to the south is Ocean City, Maryland's premier tourist destination and a common destination for tourists from Washington, DC, and other nearby metropolitan areas. In both areas, tourism dominates the economic activity and the commercial fishing fleets are, on the one hand, appendages to the tourist sectors and, on the other, economic activities that have been marginalized by the tourist sector. Fishers in both locations have experienced the encroaching effects of coastal gentrification and real estate development, although portions of the fleet in Cape May have situated themselves within the tourist trade in a way similar to Chatham fishers, becoming tourist attractions themselves and providing fresh fish to local markets and restaurants.

In Ocean City, the commercial fleet ties up at a small sheltered harbor south of the boardwalk and other attractions of the tourist trade. As noted elsewhere in this report, the fleet seems more marginalized than the fleet in Cape May, a portion of which has been well integrated into the tourist industry. McCay, et al. (1993) said this about Ocean City, lending support to the notion that the fleet is becoming more marginalized over time: "Ocean City residents are begrudgingly tolerant of the commercial fishing industry. The commercial docks are located between a business and residential section. Residents are making sure the commercial businesses and boats stick to the letter of the [zoning] law. Also, landside access to the harbor area is limited in that there is only one street on which a tractor trailer can drive. In the past gear was stored on property that was zoned residential but this practice has been eliminated. Some very expensive homes have been built close to the harbor area and these owners do not like the sight of the gear."

Ocean City's fleet is primarily a small- to medium-sized vessel fleet, operating as day

vessels and fishing often in Maryland state waters for blue crab, particularly behind the barrier islands. Cape May's fleet is larger and more diverse than Ocean City's, fishing with draggers, lobster pots, gillnets, and black sea bass pots. In 1993, McCay, et al. (1993: 76) reported that squid was becoming the most important species in Cape May, that there were 33 local draggers and 57 transient vessels. The fleet supplies fish to a bustling seafood processing sector at four primary locations around the city, creating shore-side employment for over 200 individuals, some of whom are contracted for work from as far away as Philadelphia.

Observing transient vessels is not less common in Ocean City. Perhaps the most significant attribute of the Cape May and Ocean City ports is their status as ports for transient boats from the north and south. During our visits, we saw shrimp vessels from North Carolina, Mississippi, and Norfolk in these ports, alongside local vessels. The central locations of Cape May and Ocean City in terms of northern and southern fisheries, combined with an increase in transience among fishers in general as crises develop in one fishery after another, is likely to increase the importance of these ports in the future.

G. Southern Range: Hampton Roads/Newport News, VA, and Wanchese, NC

At this, the southern range of the ground fishing fleet, fishers who are native to the area have developed a multi-species, multi-gear, highly flexible fishing strategy that relies on state and federal waters and includes the commercial exploitation of several species. Unlike the fleet based in the Gulf of Maine, the winter season along North Carolina's Outer Banks and the mouth of the Chesapeake is a heavy sink net fishing season, when commercial fishers target weakfish, various basses, flounder, monkfish bycatch, and dogfish. During this season, as well, fishers from several ports in the northeast also land fish at the fish houses of Wanchese, North Carolina and the two Virginia ports of Hampton Roads and Newport News. During a visit in March 1996, we encountered three New Bedford-based fishers off-loading monkfish and monkfish livers from a 40' craft at one of the principal seafood dealers in Wanchese, and in Portland we listened while fishers related stories of wintering off North Carolina's coast, as much to escape the chilling Gulf of Maine winter as to catch and land fish.

In part because fishers in this region depend nearly as much on fishing in state waters as fishing in federal waters, those we interviewed seemed less disturbed by federal regulations than fishers in other ports. At the same time, Eastern Dare/Outer Banks fishers were less concerned (although not entirely unconcerned) about water quality issues than fishers in the other four regions. They expressed some concern over the navigational

difficulties surrounding Oregon Inlet, but were far less inclined to bring up the issues of hog waste, mining, or forestry than other fishers we interviewed. Because of problems with Oregon Inlet, many seafood dealers have moved their marketing and processing operations from Wanchese to the Newport News/Hampton Roads region, both expanding their seafood buying capabilities and creating more integrated linkages between the two landing centers.

Based on visits to the area and interviews primarily with seafood dealers, there are around 80 to 100 trawlers in the 60' to 100' range that land fish in the Hampton/Newport News area, although not all of these are local vessels. These fish for flounder--known throuout the Northeast as "fluke"--in the winter time and scallop in the summer. An important bycatch of the scallop fishery in this region are monkfish. Seafood dealers interviewed ranged from the belief that changing regulations would affect no fisher to believing they would have negative impacts on around half of the fleet, with 25 percent moving into other fisheries and 25 percent, primarily the larger vessels, going out of business.

Local fishers felt that New England fishers had been infringing upon their fishing territories and water since before Amendment # 5, and Amendment # 7 has exacerbated this. Fishers operating out of the mouth of the Chesapeake expressed deepest concerns, among all the fishing issues, over problems with the quota systems for summer flounder. Fishing "inside" or in state waters for summer flounder has long been a central part of North Carolina and Virginia fishers, and they have, historically, supplemented these catches with summer flounder caught in federal waters. Quotas for summer flounder have caused them to shift from summer flounder to mackerel and dogfish, as well as move into the squid fisheries that are more popular along the New Jersey shore.

Some fishers we interviewed cited a decrease in wintertime fishing opportunities--related, in part, to recent decline in oyster stocks--saying that this has led to increases in summertime fisheries, particularly crabbing in inside waters. As fishers come into the Pamlico and Currituck Sounds, they encounter crowding problems associated with the trap fisheries of North Carolina's Albemarle-Pamlico Estuarine System. Similar difficulties face crabbers in the Chesapeake, who have historically defined and defended territories. Thus, moving into inland waters is only a partial solution for fishers in this region.

Two factors influence the behaviors of fishers in this region: that they switch between federal and state waters and hence depend on several gears and species through the year, and that they rely heavily on nets. The former predisposes fishers in this region to object to some of the federal quota systems and to view competition from fishers from other states as problematic; the latter makes them more sensitive to those regulations affecting nets,

particularly Florida's net ban (which has caused an increase in Florida net fishers fishing in North Carolina waters or the federal waters near North Carolina), mandated modifications to nets because of turtles or bycatch issues, and mesh size regulations.

[Fishers along the Outer Banks and from Wanchese are especially sensitive to the historical importance of their fisheries and related marine lifestyles, beginning with the shore-based whaling fisheries of the early colonial period and going through subsequent periods where fishing families provided life-saving services to hundreds of ships that make up the "Ghost Fleet" of the Outer Banks.](#) Fishers we interviewed here mentioned the importance of this history in terms of the memories of old fishers. One claimed, for example, that there have been periods in local fishers' pasts that they had to migrate to Florida because of declines in local fish stocks, making the argument that regulations need to consider extreme fluctuations in fish stocks as part of the economic hazards of commercial fishing. This same fishers noted the importance of life-time experience in fishing and of the difference between knowledge gained through direct experience and knowledge gained through scientific methods; the latter, of course, may suffer from sampling biases, while the former may suffer from other kinds of biases (economic, political, religious, etc.), yet combining the two could far better inform the regulatory community than sole reliance on one or the other.

[The heavy dependence on Wanchese as a fishing community demands special attention in this section.](#) Seven principal families of seafood dealers ring the seafood industrial park and serve as the central locations of the estimated 200 fishing families who live in Wanchese as well as anchor the southern marketing behaviors of fishers from as far away as New Bedford, Massachusetts and Portland, Maine. The fleets that originate from here, and the fishing activity focused by the seafood dealers and the ports, concentrate around the seafood industrial park and fleets of trawlers organized or encouraged by seafood dealers. The large, >100' vessels, as is occurring elsewhere, have been less active recently, their captains and crews now fishing from smaller crafts.

[These arrangements have been replicated in the NewportNews/Hampton area.](#) As one leaves either Wanchese or migrates across the Chesapeake, to Virginia's Eastern Shore and the other parts of the Delmarva Peninsula, more independent, owner-operator fishing operations prevail, with some long-time loyalties between fishers and fish dealers that hinge on the questions of slip space and access. In recent years, fishers in this region have become increasingly concerned that real estate development will entice dealers to sell their space to developers less interested in commercial fishing than in providing marinas and condominiums for recreational boating traffic.

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N.B. There are some references at the bottom of Section I for which no primary author was provided. As I look these up I will correct them. Trish Clay

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