Taking the Pulse of the Lobster Industry: A Socioeconomic Survey of New England Lobster Fishermen

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ACKNOWLEDGEMENTS

This project was the result of many individuals who shared their ideas, provided sound advice, and guided the efforts of Gulf of Maine Research Institute. We would particularly like to acknowledge Jason Maurice of Market Decisions, LLC who remained flexible to our needs and extremely engaged in the project from inception to final product. An exceptional member of the Steering Committee for this project was Eric Thunberg of the Northeast Fisheries Science Center, NOAA Fisheries. Eric conducted much of the analysis and generated many of the tables that are presented in this report. We greatly appreciated his patience, his support, and the time that he was able to give to this project. Kristen (Togue) Brawn provided research support for this project along the way and her contribution was much appreciated.

Our deepest gratitude is toward the lobster fishing community of New England. Members of the Steering Committee who represented the interests of the lobster community were thoughtful and supportive in their engagement with this project. Indeed, without the openness of the lobster fishing community to share their information, this project would not have been possible. Thank you!

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About This Report

In the summer of 2005, the Gulf of Maine Research Institute (GMRI) initiated a project to collect baseline socioeconomic data on the New England lobster industry through a telephone survey. GMRI contracted Market Decisions, LLC, a market research firm based in Portland, Maine, to administer the survey. A Project Steering Committee was convened to help develop the survey and ensure collection of the most accurate and meaningful data. The Project Steering Committee consisted of federal and state (ME, MA, NH, RI) managers, as well as members of the Maine Lobstermen's Association, Massachusetts Lobstermen's Association, Atlantic Offshore Lobstermen's Association, and the South Shore Lobstermen's Association. The Project Steering Committee helped publicize the project with their constituents, and also assisted with overall outreach and interpretation of the final results.

This summary document provides an overview of the survey results for the *New England Lobster Socioeconomic Survey*. Although this survey sought baseline data in a broad range of areas, two areas were of particular interest to the Steering Committee: vulnerability and effort. Throughout this report, information concerning these two areas will be highlighted. It should be noted that all data presented here are in aggregate form. Those interested in learning more about the results of the survey are encouraged to review the entire report produced by Market Decisions, LLC, available through the Gulf of Maine Research Institute. However, all individual responses to the survey are confidential. No one outside of the market research firm who conducted the phone interviews has access to individual responses.

The original survey targeted responses from 12 areas (described on page 13). To facilitate use of these survey results in management, most data in this report is presented by Lobster Conservation Management Area (LCMA). LCMA 1 is divided into ME and NH/MA. In some instances, Maine information is broken down further into three areas: Downeast

Project Steering Committee

- Eric Thunberg, National Marine Fisheries Service, Northeast Fisheries Science Center
- Bonnie Spinazzola, Atlantic Offshore Lobstermen's Association
- Patrice McCarron, Maine Lobstermen's Association
- Terry Stockwell and Sarah Cotnoir, Maine Department of Marine Resources
- Dan McKiernan, Massachusetts Division of Marine Fisheries
- Patricia Pinto Da Silva, National Marine Fisheries Service, Northeast Fisheries Science Center
- Cheri Patterson, New Hampshire Fish and Game
- Thomas Angell, Rhode Island Division of Fish and Wildlife
- David Casoni and Bill Adler, Massachusetts Lobstermen's Association
- Clare Grindal, Downeast Lobstermen's Association
- Fred Dauphinee, South Shore Lobtermen's Association

(zones ABC), Midcoast (zones DE), and Southern Coast (zones FG). Due to the differences inherent in lobstering in LCMA 3 which is further offshore, responses for LCMA 3 will be given separately in several instances.

This report focuses on responses of active lobstermen (For the purpose of this report, active lobstermen are defined as those landing greater than 1000 pounds). General characteristics of all respondents who landed less than 1000 pounds of lobster in 2005 can be found in the Appendix.

The *New England Lobster Socioeconomic Survey* addresses the need for comprehensive socioeconomic data in the New England lobster industry. A great deal of valuable information was collected through this survey. It is hoped that fishermen, managers, and others will use this information to anticipate the socioeconomic impacts of changes in lobster policy and to facilitate sound management throughout the New England lobster fishery. This survey provides baseline information on the lobster fishery, but future surveys will be useful to gauge the changes in the industry over time.

Why We Conducted This Survey

American lobster is the most valuable fishery in the northeastern United States. Northern New England's lobster landings have continued to grow over the past fifteen years, with nearly every year surpassing the last. In 2006, reported lobster landings for Maine, New Hampshire and Massachusetts were over 86 million pounds with a landed value of $363 million. As each year goes by, scientists, regulators and fishermen become more concerned that record setting lobster landings may not continue. Landings in Southern New England peaked several years ago and have declined substantially since. Rhode Island landings peaked at 7.4 million pounds in 1991 and had fallen to less than 3.8 million pounds by 2006 while landings in Connecticut fell from a peak of 3.5 million pounds in 1997 to 792 thousand pounds in 2006.

Lobster landings have risen and fallen over the course of the fishery's history, and current conditions represent an atypical apex in the landings trend (Figure 1). Despite current record lobster landings, some scientists have predicted the potential for a down-turn in landings on numerous occasions.

The 2005 peer-reviewed stock assessment report for American lobster indicates the health of the resource is variable. Throughout most of the Gulf of Maine (GOM) and Georges Bank (GBK), the stock abundance is stable and recent mortality rates are sustainable. However, the report cautions for both GOM and GBK stocks "effort indicators are negative." The report goes on to suggest: "This high effort is concurrent with high stock abundance, and is not likely to be supportable if abundance returns to median levels." (http://www.nefsc.noaa.gov/sos/spsyn/iv/lobster/)

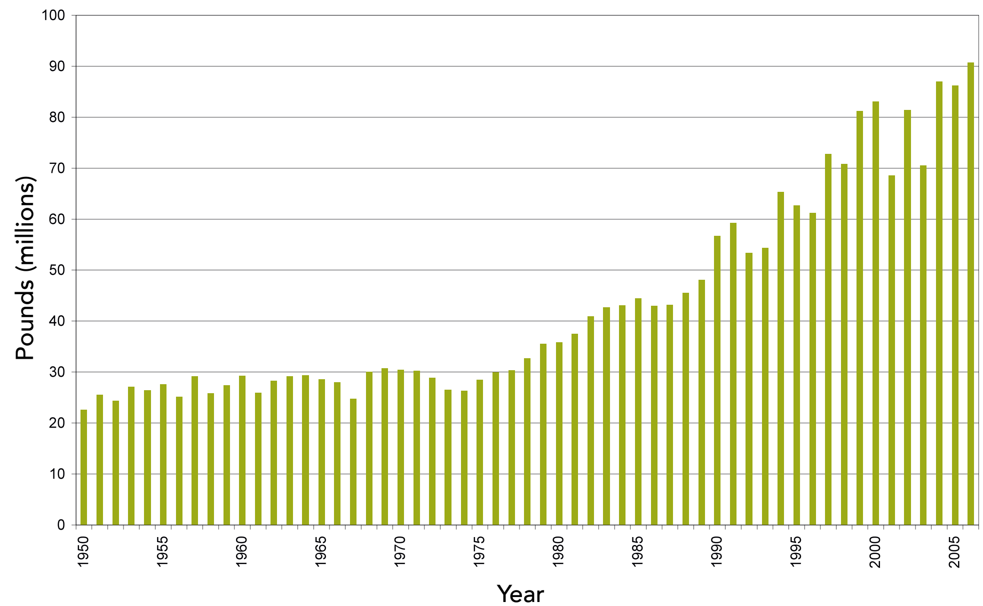

Figure 1: Landings data for ME, NH, MA, CT and RI from 1950-2006 (http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html)

Why We Conducted This Survey

In Southern New England (SNE) the lobster resource is estimated to be at low abundance and low recruitment. The depleted stock abundance, low recruitment, and high fishing mortality rates over the past few years have led to consideration of additional harvest restrictions in this area. Decreased recruitment and abundance has also been estimated in Massachusetts Bay and Stellwagen Bank.

While lobster landings have been increasing in Northern New England, other Gulf of Maine fisheries have been declining. The relative health of the lobster resource has allowed the industry to absorb an influx of harvesters displaced from other fisheries experiencing declining stocks. Meanwhile, access to other fisheries in the region has become tightly controlled. It is believed that many fishermen who previously targeted lobsters only part-time, or not at all are now exclusively dependent on the lobster resource. Many rural coastal towns now depend almost entirely on lobstering to support the local economy.

Clearly, coastal communities face a huge risk. Any number of factors could reduce lobster landings—disease, overfishing, an oil spill or other man-made disaster, or environmental factors such as warming water temperatures. It is likely that the lobster resource will decline at some point in the future. If this happens, lobster fishermen could be out of work with few options for transitioning to other fisheries. Because most lobster fishermen are self-employed, the Department of Labor can provide almost no information about their employment, income levels, family status and so forth. This creates a dangerous situation for coastal communities: the current high stock abundance supports thousands of fishing jobs throughout New England, yet we have little information to quantify their dependence on the lobster resource.

> **"The fundamental issue that confronts** both managers and lobstermen is this: given that the high recruitment and population levels are probably due to environmental conditions (such as higher water temperatures, decreased predation, or some other factors which we do not understand or control), is current abundance creating a false sense of security and leading us to believe that we can continue to fish at high exploitation rates?"
>
> (from Amendment 3 of the Atlantic States Marine Fisheries Management Plan for American Lobster)

The lack of socioeconomic data for the New England lobster industry makes it very difficult to prepare effectively for inevitable changes within the industry. The *New England Lobster Socioeconomic Survey* was initiated to address this lack of information about the New England lobster fishing industry and collect baseline socioeconomic data on the New England lobster industry. We hope the information collected will provide managers and the industry with baseline data on which to evaluate future policy and programs for the New England lobster fishery.

What Information was Collected

The study area for the survey encompassed the Atlantic States Marine Fisheries Commission's Lobster Conservation Management Areas 1 and 2, and that part of Area 3 fished by lobstermen from Maine, New Hampshire, Massachusetts and Rhode Island. The phone survey was administered in 2006 to a random sample of commercial lobster license holders within those states. Questions covered baseline information for the 2005 calendar year and included demographics, involvement in the lobster industry, business operations, and financial information. The Project Steering Committee was particularly interested in obtaining information on the financial vulnerability of lobstermen and their families and the amount of effort currently employed in the lobster industry.

Information Collected from Active* Lobstermen included:

Demographic Characteristics
- gender
- age
- marital status
- education/training
- number in household
- children's education/training

Involvement in the Lobster Industry
- years involved in lobstering
- years holding a lobster license
- years planning to lobster

Vessel Characteristics
- length
- horsepower
- crew size
- distance moored from home

2005 Lobstering by Quarter
- number of traps
- number of trap hauls per trip
- number of trips per week
- number of pounds per trip

Lobster Effort (*note: this term was not specifically defined for respondents)
- increased or decreased since 2004
- reasons for increase or decrease
- expectations for increase or decrease in future and reasons

Other Fishing Activities
- percent who hold other fishing licenses or permits
- type of license or permits
- percent earning income from other fisheries

Lobster Business
- gross revenue for lobster business 2005
- amount paid to sternmen in 2005
- % of revenue in 2005 that went towards fuel and oil
- % of revenue in 2005 that went towards bait
- % of revenue in 2005 that went to vessel insurance
- % of revenue that is profit after all expenses are paid

Investments and Financing of Lobster Business
- investments in lobster business (gear, boat, etc.)
- other investments
- amount and purpose of business loans
- source of financing
- plans for future investment in business

Household Income
- household income
- source of income (lobstering, other fishing, other)
- other household members who contribute to income
- source of other household members' income

Health Insurance Coverage
- insured or uninsured
- level of insurance
- source of insurance

Retirement
- plans to retire
- type of retirement assets (IRA, 401k, savings)

Comments about the Lobster Industry
- major changes seen in the lobster industry in the last 5-10 years
- major changes foreseen in the next 5-10

* For this survey active lobstermen are defined as those who landed 1000 pounds of lobster or more during 2005. A separate, shorter survey was done for those respondents who said they landed less than 1000 pounds in 2005.

Lobster Management and Data Collection in Brief

The New England Lobster Fishery is prosecuted in both state and federal waters. Each state manages the lobster fishery that occurs within its own waters (0-3 miles offshore). Federal waters (3-200 miles) are subject to federal management authority. Since 1997, the Atlantic States Marine Fisheries Commission (ASMFC) has managed the federal lobster fishery under its Interstate Fishery Management Plan for American Lobster (ISFMP). Management is conducted in seven separate Lobster Conservation Management Areas (LCMAs) four of which occur in New England (Figure 2).

Each LCMA has a Lobster Conservation Management Team (LCMT), consisting of area fishermen. Teams are encouraged to develop management recommendations that address the specific needs of their LCMA. The ASMFC Lobster Management Board considers these recommendations when pursuing the goals of the Interstate Fishery Management Plan. The ASMFC also helps states coordinate management plans to ensure comprehensive, compatible, and effective management of the US lobster resource.

Regulations differ somewhat across LCMAs and states, but the basic system of management is similar. All areas and states have limited access licenses (though they are not transferable in Maine while they are in other states). All states have minimum size limits and prohibitions on landing female egg bearing lobsters. Maine also has a maximum size. Maine has codified a practice known as V-notching whereby egg bearing females have a notch cut in their tail when they are released. The notch may last several years and a lobsterman that captures a notched lobster even when not bearing eggs must release the lobster. Other states are now implementing this rule. This combination of effort controls and technical regulations has, to date, been successful at protecting a brood stock of lobster that has continued to provide recruits to the fishery.

Over three-quarters of New England's lobster is landed in Maine (79.8% in 2005 according to NMFS landings data). The Maine Department of Marine Resources (DMR) divides the lobster fishery into seven management zones. Within each zone, a zone council works with the Maine Lobster Advisory Council and the Commissioner of Marine Resources to enact management tailored to local conditions. Zones run from east (Zone A) to west (Zone G).

Collection of accurate and complete data is an important component of the management structure. In the lobster fishery, fisheries-dependent data is collected through catch and landings reports, port sampling, and sea sampling. The majority of data collected concerns the health and stability of the lobster resource with little socioeconomic information collected. Each state collects these data through separate programs, which are not always compatible. The ASMFC is currently working to establish comprehensive standardized data collection throughout the lobster fishery to allow data to be compared more easily throughout the region.

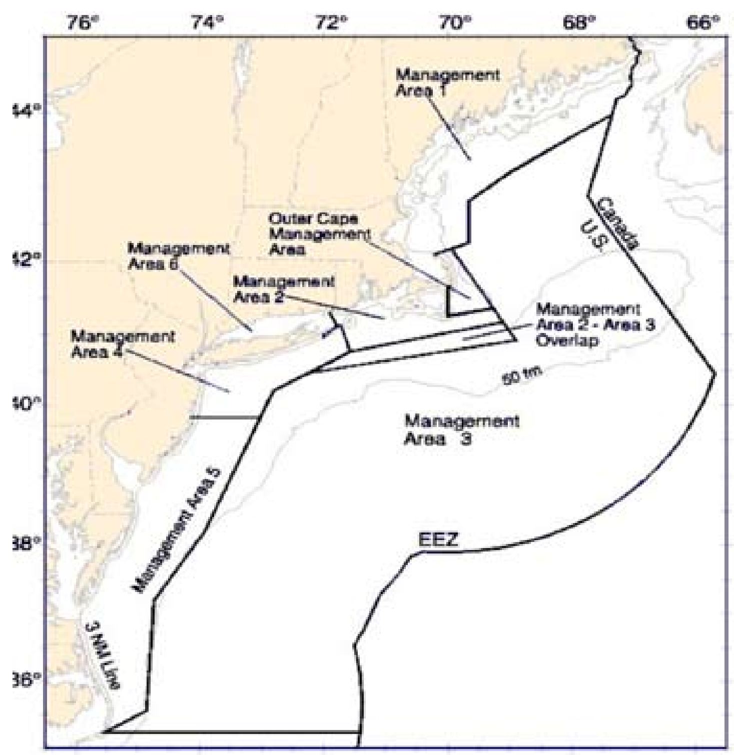

Figure 2. ASMFC Lobster Conservation Management Areas


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How the Survey was Conducted

The *New England Lobster Socioeconomic Survey* was based on telephone interviews conducted from March 13th, 2006 to August 29th, 2006, with 1,158 randomly selected lobstermen in New England. In 2005, there were 9701 commercially licensed lobstermen within the study area. The sampling approach relied on a stratified sampling design that examined twelve fishing areas in Maine, New Hampshire, Massachusetts, and Rhode Island, including both state and federal waters. The table on the right displays the breakdown of the 12 areas, including the federal management area, the state area as appropriate, and the total number of interviews conducted among lobstermen in that area.

In addition to stratifying by geographic area, the sample was also stratified by activity level. Activity was defined by asking whether the respondent had landed 1000 pounds of lobster or more in 2005. Further, because this research was mainly concerned with lobstermen who make a living from catching and selling lobster, respondents who were considered as not actively lobstering (landed less than 1000 lbs. of lobster in 2005) were asked a limited set of questions. The results in this summary document are focused on active commercial lobster fishermen.

The random sample of telephone numbers called was based on the most recent list of lobster license holders within each state. When a working number was called, the person listed as the lobster license holder was identified and interviewed. On average, it took six calls to make contact. The response rate was 40%, defined as the ratio of the number of completed interviews divided by the number of eligible units in the sample. The cooperation rate was 80%, which indicates 80% of those lobstermen reached by phone actually completed the survey.

Strata	LCMA	Zone	Sample size
Maine			
1	Lobster Management Area 1	Zone A	136
2	Lobster Management Area 1	Zone B	73
3	Lobster Management Area 1	Zone C	120
4	Lobster Management Area 1	Zone D	144
5	Lobster Management Area 1	Zone E	75
6	Lobster Management Area 1	Zone F	120
7	Lobster Management Area 1	Zone G	60
New Hampshire			
8	Lobster Management Area 1		59
Massachusetts			
9	Lobster Management Area 1		131
10	Lobster Management Area 2		65
Rhode Island			
11	Lobster Management Area 2		140
12	Lobster Management Area 3		33

Table 1: Number of interviews by sample strata, state, and LCMA.

A note on confidence intervals:

In this survey, responses of a sample population reveal characteristics of a population as a whole. As in all surveys, the larger the sample population, the more likely it is that their responses accurately reflect characteristics of the larger group. The likelihood that survey results represent the larger population is expressed in confidence intervals, which in this report are represented by a +/- figure following numerical results, or by vertical bars extending above or below columns on charts. The confidence intervals used here are 95%, meaning there is a 95% chance that characteristics of the subject population fall within the range expressed. For instance: "49 % (+/- 4.3%) of Maine Lobstermen have outstanding business loans." This means that 49% of the Maine lobstermen surveyed have an outstanding loan on their business. Based on the number of Maine lobstermen surveyed, compared to the number of Maine lobstermen overall, there is a 95% probability that the actual percentage of all Maine lobstermen with outstanding business loans falls between 44.7% and 52.3%.

What We Learned - Key Findings of the Survey

The "Average" Active Lobsterman in New England

Lobstermen in New England are an average of 50 years old. Approximately three-quarters are married, although fewer than one in three has children living at home. Eighty percent have at least a high school diploma or G.E.D., 12% have a Bachelor's degree, and 2% hold a graduate degree.

Maine lobstermen appear less likely to have graduated high school than those in other areas. In LCMA 1 ME, 19% (+/- 3%) of lobstermen did not graduate high school. In LCMA 1 NH/MA, that number is 12% (+/- 7%), in LCMA 2 it is 9% (+/- 6%), and in LCMA 3 it is 36% (+/- 20% note that the large confidence interval is due to a small sample size).

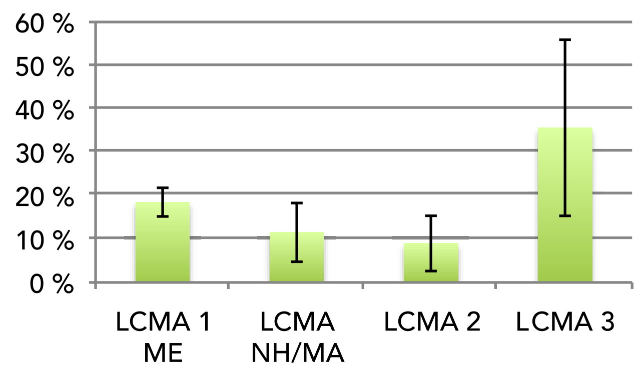

Figure 3: Did not Finish High School, by LCMA.

How do lobstermen compare to the general population?

According to 2005 US Census data, the percent of people in the study area 25 years and over who have not completed high school (including equivalency) ranges from a low of 10% in New Hampshire to a high of 17% in Rhode Island (Maine, 11%, Massachusetts 12 %, +/- for all states 1% or less). Because the geographic breakdowns, age ranges, and confidence intervals are not the same, (US Census uses a 90% confidence interval), it is difficult to compare the two sources. However it is interesting to note that it appears Maine lobstermen are less likely than their local counterparts to have graduated from high school, but Rhode Island lobstermen are more likely to have done so.

On average, lobstermen have held a lobster permit for 28 years. Maine lobstermen have held their licenses for slightly longer than those in other areas (although only the difference between LCMA 1 ME and LCMA 1 NH/MA is statistically significant). Most lobstermen were involved in the industry for 2-4 years before getting their own license.

Approximately 60% of respondents in LCMA 1 and 2 said they planned to lobster as long as they could or as long as needed. Lobstermen in LCMA 3 generally planned to retire somewhere between 1 and 20 years in the future.

	LCMA 1 ME		LCMA 1 NH/MA		LCMA 2		LCMA 3	
	mean	+/-	mean	+/-	mean	+/-	mean	+/-
Years in Lobstering	31	1	29	3	27	3	29	5
Years with a License	29	1	24	3	25	3	25	5

Table 2: Number of years in the lobster industry and number of years with a lobster license by LCMA.

Traps to Pounds to Dollars: What was the Scale of 2005 Lobster Operations in New England?

A Note of Precaution When Interpreting Effort Data

Each management zone has different laws concerning trap limits. Within Maine, Zone D allows a maximum of 600 traps per licensed lobster vessel. All other Maine zones have an 800 trap limit. In 2005, New Hampshire had a two-tiered approach to trap limits: all lobstermen were limited to either 1200 or 600 traps. Rhode Island and Massachusetts lobstermen were limited to 800 traps, and some lobstermen (in Rhode Island and south of Cape Cod) were limited to fewer than 800 traps, depending on their historic effort. LCMA 3 lobstermen were limited to no more than 2200 traps.

Lobster fishermen in New England are more active during 3rd and 4th quarters of the year. The relative participation rates by quarter are reasonably consistent across regions with the exception of LCMA 3. Participation is much more consistent throughout the year for LCMA 3 with 75% (+/- 17%) of lobsterman active in Quarter 1. In other areas participation rates tend to be much lower in Quarter 1 ranging from 17% to 47% for different state-zone-LCMA combinations (see table 3 on left).

For those fishermen who are active in each quarter, effort levels also tend to be higher in the 3rd and 4th quarters. For New England overall in the 3rd quarter, lobstermen had, on average, a maximum of 557 traps in the water, made four trips per week when they hauled traps, and hauled about 280 traps during each trip. In the 4th quarter, on average, lobstermen had a maximum of 550 traps in the water, made four trips per week when they hauled traps, and hauled about 225 traps during each trip.

LCMA and Zone	Quarter 1	Quarter 2	Quarter 3	Quarter 4
ME Zone A	17 % (11%-23%)	61 % (51%-71%)	95 % (90%-100%)	92 % (87%-98%)
ME Zone B	30 % (18%-42%)	82 % (71%-92%)	98 % (94%-100%)	90 % (81%-98%)
ME Zone C	27 % (18%-35%)	72 % (63%-82%)	100 % (100%-100%)	90 % (84%-96%)
ME Zone D	28 % (20%-36%)	80 % (72%-88%)	95 % (91%-100%)	92 % (86%-98%)
ME Zone E	42 % (29%-55%)	85 % (75%-95%)	95 % (89%-100%)	97 % (92%-100%)
ME Zone F	26 % (17%-34%)	69 % (59%-79%)	100 % (100%-100%)	95 % (90%-100%)
ME Zone G	47 % (29%-65%)	93 % (83%-100%)	98 % (95%-100%)	95 % (85%-100%)
NH LCMA 1	39 % (23%-55%)	82 % (69%-94%)	100 % (100%-100%)	94 % (86%-100%)
MA LCMA 1	33 % (23%-42%)	71 % (60%-82%)	99 % (98%-100%)	92 % (84%-99%)
MA LCMA 2	42 % (20%-64%)	82 % (62%-100%)	80 % (58%-100%)	67 % (44%-91%)
RI LCMA 2	42 % (30%-54%)	91 % (84%-98%)	96 % (90%-100%)	82 % (72%-92%)
Fed LCMA 3	75 % (57%-92%)	95 % (85%-100%)	95 % (85%-100%)	90 % (77%-100%)

Table 3: Percent of lobstermen surveyed who replied that they fished for lobster in each quarter of 2005 by LCMA and Maine Lobster Zone.

Less effort was used by lobstermen who were active in the first half of the year. On average, lobstermen had a maximum of 450 traps in the water during the 1st quarter and 480 traps in the water during the 2nd quarter. There were an average of two trips per week when they hauled traps and three trips per week in the 1st and 2nd quarters, respectively. During those trips, lobstermen hauled about 250 traps and 216 traps for each quarter.

As the table below shows, the relatively higher effort levels of active fishermen in the 3rd and 4th quarters are most reflective of what occurs throughout LCMA 1 and LCMA 2. The maximum traps used on average in LCMA 3 are more consistent throughout the year, though few trips per week occur in Quarter 1.

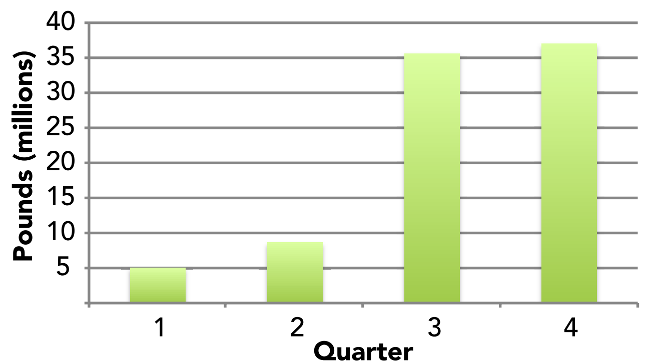

Figure 4: Lobster landings measured in pounds for New England in 2005 by quarter. Source: (http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html)

The table on the next page provides data on lobster fishing effort and landings by LCMA by quarter.

Average landings per fishermen by quarter are also higher in the 3rd and 4th quarters. In fact, the higher level of landings in these quarters is more pronounced than are the effort levels. The higher average landings in the 3rd and 4th quarters apply to LCMA 3 as well as the other areas. We note that the Table 4 shows average landings for active fishermen during those periods. Because more lobstermen are active in the last two quarters, overall landings are heavily concentrated in the 3rd and 4th quarters.

	LCMA 1 ME		LCMA 1 NH/MA		LCMA 2		LCMA 3	
	Mean	+/-	Mean	+/-	Mean	+/-	Mean	+/-
Quarter 1								
Maximum Traps	439	33	470	92	367	78	1041	294
Average Trips per Week	1.7	0.1	2.1	0.3	1.8	0.3	2.0	0.6
Average Traps Hauled per Week	232	15	247	60	196	36	939	345
Total Landed Pounds	2,980	575	3,076	2,445	1,848	836	5,618	2,937
Quarter 2						0		
Maximum Traps	485	23	436	52	401	62	1031	215
Average Trips per Week	3.4	0.1	3.4	0.3	2.8	0.3	2.5	0.9
Average Traps Hauled per Week	211	8	214	32	175	23	855	269
Total Landed Pounds	4,013	462	2,667	725	2,205	481	12,066	4,928
Quarter 3								
Maximum Traps	564	20	490	49	458	61	1055	191
Average Trips per Week	4.5	0.1	4.2	0.3	3.9	0.4	3.2	0.9
Average Traps Hauled per Week	222	8	230	25	193	24	853	272
Total Landed Pounds	11,914	3,924	5,710	1,568	5,348	1,297	25,970	9,597
Quarter 4								
Maximum Traps	555	21	501	52	448	67	1035	223
Average Trips per Week	3.9	0.1	3.8	0.3	2.7	0.3	2.4	0.8
Average Traps Hauled per Week	222	7	233	28	186	27	849	279
Total Landed Pounds	11,920	3,037	7,257	2,590	3,222	1,058	29,497	11,719

Table 4: Lobster fishing effort (measured by maximum number of traps, average trips per week, average traps hauled per trip, and total pound landed) by LCMA for each quarter of 2005.

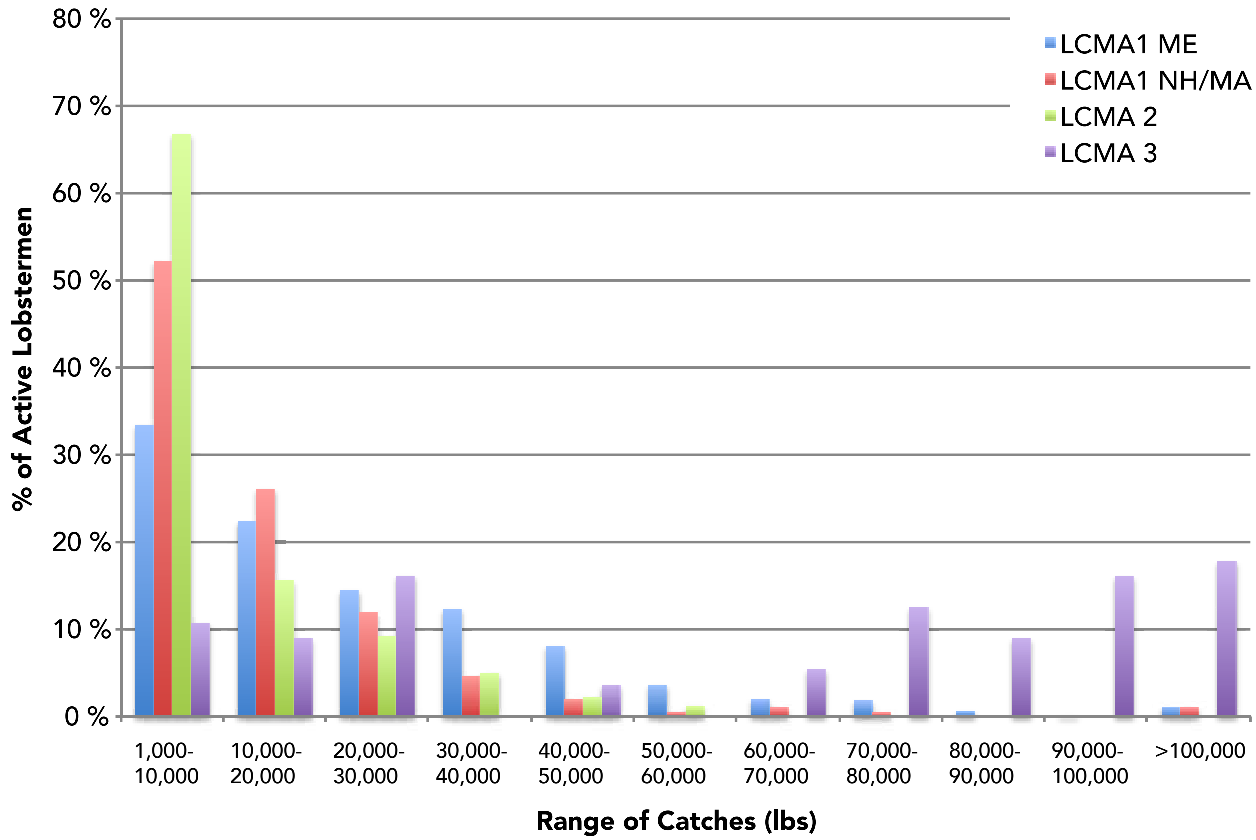

Figure 5: Distribution of average annual landings of active lobstermen for 2005 by LCMA.

The variation in landings by individuals within and between areas is striking. The chart above shows the range of average annual landings across management areas based on the survey data. While roughly 20% of lobstermen in LCMA 1 NH/MA and LCMA 2 reported landing more than 20,000 pounds annually, in Maine 44% reported doing so in 2005. Maine lobstermen are also far more likely to land more than 40,000 pounds: around 17% of Maine lobstermen land more than 40,000 pounds of lobster annually, compared to 5% of the lobstermen in LCMA 1 NH/MA, and a negligible percentage in LCMA 2. In LCMA 3, 64% of lobstermen landed more than 40,000 pounds of lobster and 18% landed more than 100,000 pounds of lobster in 2005.

Effort in Maine Increases Over Time:

The Maine Department of Marine Resources estimated that the number of traps in Maine's coastal waters more than doubled between 1967 and 1997, and that the number of traps per boat had increased more than 600% over the same time period. Although this growth has slowed recently, the number of commercial trap tags sold increased roughly 13% between 1997 and 2006, with the largest increase occurring in Zones A and B (Maine DMR data). Maine traps per boat (as measured by number of commercial trap tags sold, excluding student tags, divided by the number of commercially licensed vessels) reached a peak in 1999 at 209, and stood at 194 traps per vessel in 2005.

Despite the growth in effort in Maine in recent years, there is still significant latent effort in the fishery in Maine and in other regions. As the table below shows, a significant percentage of lobsterman are "inactive", having landed less than 1000 pounds of lobster in 2005. About one quarter of licensed lobsterman caught under 1000 pounds of lobster in 2005 though the percentage of active fishermen varies greatly by area as illustrated by Table 5 on the right. Among those who did not land more than 1000 lbs. of lobster in 2005, over a quarter said they were not actively lobstering due to their own or a family member's illness. About another quarter said they had changed jobs, worked in another fishing industry, or were now working for another lobsterman. The percentage of Maine LCMA 1 and LCMA 3 lobster license holders who were inactive in 2005 was much lower than that for license holders in LCMA 1 and LCMA 2 in Massachusetts and Rhode Island.

As noted above, the average number of trap tags per boat in Maine in 2005 was 194 while each license holder is entitled to purchase 800 except in Zone D where the limit is 600 traps. Trap limits are 800 in Massachusetts and Rhode Island, either 600 or 1200 in New Hampshire and 2200 for LCMA 3. As Table 4 illustrated, active fishermen are, on average, using well under the maximum number of traps and many are not participating year-round (Table 3). This highlights the magnitude of latent effort and the potential for rapid increase in fishing capacity even with the restrictions in place on licenses and numbers of traps. It also complicates attempts to reduce effort by reducing trap limits. Increases in trap numbers by less active fisherman could offset the reductions taken by the most active fisherman.

	Yes	No
ME Zone A	89 % (84%-94%)	11 % (6%-16%)
ME Zone B	85 % (78%-92%)	15 % (9%-22%)
ME Zone C	87 % (81%92%)	14 % (8%-19%)
ME Zone D	84 % (78%-90%)	16 % (10%-22%)
ME Zone E	82 % (75%-90%)	18 % (11%-25%)
ME Zone F	80 % (73%-87%)	20 % (13%-28%)
ME Zone G	80 % (70%-89%)	20 % (11%-30%)
NH LCMA 1	30 % (18%-41%)	70 % (59%-82%)
MA LCMA 1	39 % (27%-51%)	61 % (49%-73%)
MA LCMA 2	29 % (18%-40%)	71 % (60%-83%)
RI LCMA 2	48 % (40%-57%)	52 % (43%-60%)
Fed LCMA 3	69 % (51%-86%)	31 % (14%-49%)

Table 5: Percent of respondents who landed more than 1000 pounds of lobster during the 2005 calendar year by LCMA and Maine Lobster Zone.
Note: Confidence Intervals are in parentheses.


LOBSTER
TAKE NOTICE
NO
CAUTION
STORE HOURS
Mon. - Sat.
8:30 - 5:30
Sunday
CLOSED

What We Learned - Key Findings of the Survey

The "Average" Lobster Business for Active Lobstermen in New England

The average vessel size for active lobstermen was 32 feet. There were no statistically significant differences in vessel length or engine horsepower amongst LCMA 1 ME, LCMA 1 NH/MA and LCMA 2. Not surprisingly, LCMA 3 vessels are significantly larger, and have greater horsepower engines than those in any other area.

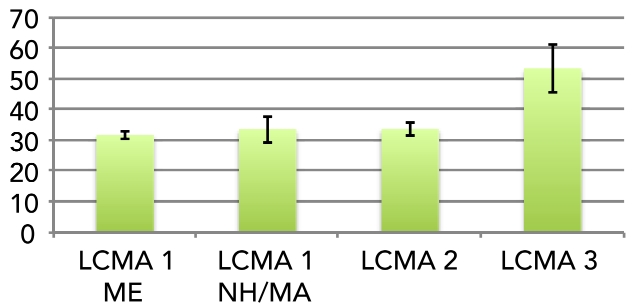

Figure 6: Average vessel length in feet for active lobstermen by LCMA.

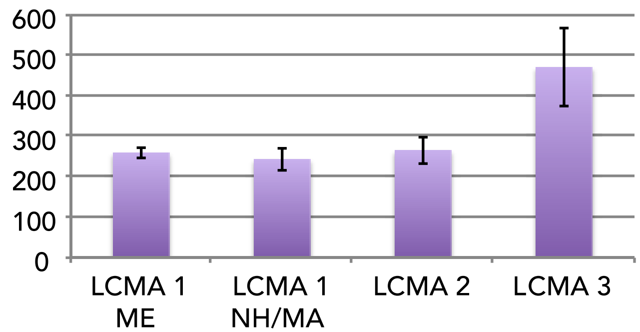

Figure 7: Average vessel horsepower for active lobstermen by LCMA.

The "Average" Lobster Business for Active Lobstermen in New England

Although there are some lobster license holders that are making substantial revenues from lobstering, the net revenues of lobstermen after accounting for operating expenses are not high on average, even for lobstermen that fished during more than two quarters in 2005. An exception is LCMA 3. As we note below, many households depend on other income to supplement income from lobstering. Note that the net return reflects only variable expenses and does not account for capital costs such as boat payments. Recent increases in fuel prices have almost certainly further reduced net returns since 2005.

Region	Fish More than two Quarters per Year	Sterman	Gross Revenue	Net Return After Expenses	Sternman Payment % of Gross	Fuel & Bait and P&I Insurance % of Gross
LCMA 1 Maine	YES	NO	$47,854	$15,397	NA	28 %
		YES	$106,317	$35,247	20 %	25 %
	NO	NO	$27,778	$8,957	NA	29 %
		YES	$54,683	$18,812	16 %	30 %
LCMA 1 NH/MA	YES	NO	$49,368	$15,523	NA	27 %
		YES	$119,609	$35,570	26 %	33 %
	NO	NO	$22,788	$3,409	NA	29 %
		YES	$54,660	$16,021	15 %	32 %
LCMA 2	YES	NO	$44,524	$14,074	NA	28 %
		YES	$112,206	$35,979	17 %	24 %
	NO	NO	$38,562	$11,485	NA	25 %
		YES	$21,627	$7,556	NA	17 %
LCMA 3	YES	YES	$423,905	$89,357	32 %	28 %

Table 6: Lobster business revenue characteristics for 2005 by LCMA, activity level, and use of a sternman.

How are Lobster Businesses Financed?

Almost four in five active lobstermen surveyed made an investment in their business during the 2005 calendar year. Common investments included new traps (65%), other new gear (24%), and ropes and buoys (22%). Of those that made investments, roughly one fifth to one half (by area) did so to comply with state or federal regulations.

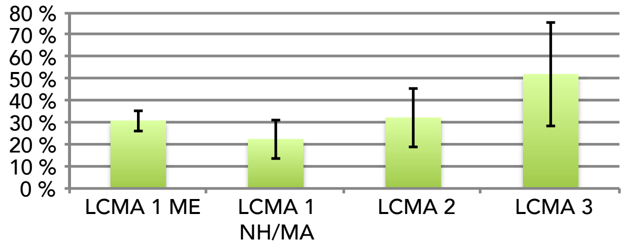

Figure 8: Percent of active lobstermen who made lobster business investments in 2005 due to fisheries regulations.

About a third of active lobstermen think they will invest more in their lobster business during the 2006 calendar year. When asked what they will invest in, 50% indicate new traps, 19% a new boat, and 17% say they will need a new engine for their boat.

In terms of financing these investments, just under half of all lobstermen have outstanding business loans. While 49 % (+/- 4%) of lobstermen in LCMA 1 ME and 58% (+/- 21%) in LCMA 3 have outstanding business loans, only 26% of those in LCMA 1 NH/MA, and 15% (+/- 8%) of LCMA 2 lobstermen have outstanding business loans.

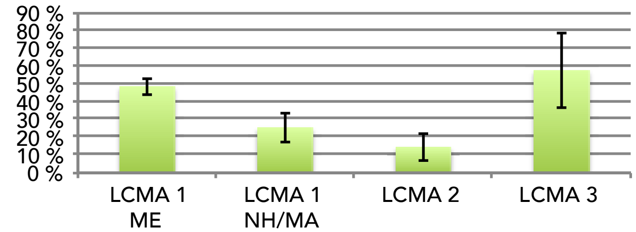

Figure 9: Percent of active lobstermen who have outstanding business loans by LCMA.

The size of the business loans varies significantly by geographic region. As might be expected, the larger loans are for LCMA 3 lobstermen with an average of $149,334. However, the small sample size makes it difficult to consider this a reliable estimate as the confidence limits give a range of +/- $90,092. Lobstermen in Maine, on average, have significantly larger loans than those lobstermen who fish in LCMA 2, with an average loan of $56,279 (+/- $7,860) in LCMA 1 ME and an average loan of $20,015 (+/- $14,017) in LCMA 2.

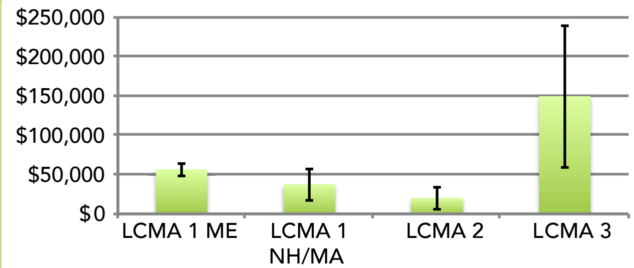

Figure 10: Average dollar amount owed on lobster business loans in 2005 by LCMA.

	LCMA 1 ME		LCMA 1 NH/MA		LCMA 2		LCMA 3	
	Mean	+/-	Mean	+/-	Mean	+/-	Mean	+/-
Average Amount Owed on Business Loans ($)	56,279	7,860	37,278	19,945	20,015	14,017	149,334	90,092
New Boat	67.6%	5.8%	35.9%	15.5%	30 %	2 %	90 %	19 %
New/Rebuilt Engine	13.7%	4.4%	28.5%	19.0%	14 %	19 %	10 %	19 %
Gear/Equipment	21.6%	5.1%	28.1%	15.4%	19 %	22 %		
Truck/Vehicle	11.7%	3.6%	17.0%	13.7%	49 %	30 %		
Boat Repair/Overhaul	5.7%	3.0%	12.2%	10.9%			20 %	22 %

Table 8: Average dollar amount owed on lobster business loans in 2005 and purpose of loans (as a percent of total) by LCMA.

Loans are more likely to be for new boats in LCMA 3 and LCMA 1, and for a truck or other vehicle in LCMA 2.

Over half of active lobstermen use personal or family savings as a method to finance their lobster business, and about 1 in 5 use personal or family credit cards. Despite such a large proportion that uses personal means to finance their business, almost three-quarters of active lobstermen feel there are adequate sources of financing for their lobster business.

Nine percent of active lobstermen have invested profits from lobstering in another business during the past year. Among those who indicate they have invested profits from their lobstering business in another business in the past year, 39% invested in another fishing related business, and 17% invested in real estate or other property.

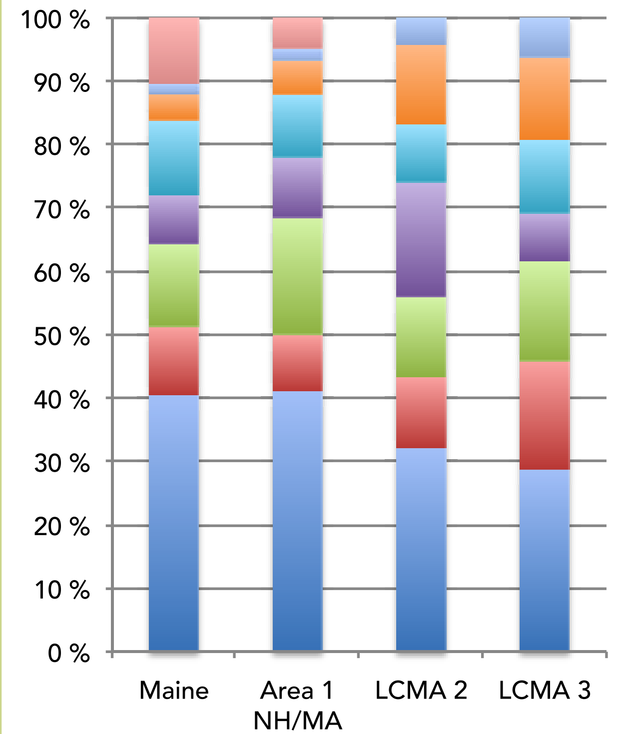

Figure 11: Sources of financing for lobster business loans as a proportion of total financing by LCMA.

What We Learned - Key Findings of the Survey

How Vulnerable are Lobster Fishing Families to a Potential Drop in Landings?

The average annual household income in New England for lobster fishing families surveyed ranged from a high of $87,960 (+/- $41,805) in LCMA 3 to a low of $57,385 (+/- $7,252) in LCMA 1 NH/MA. As a means of comparison, the U.S. Census reported that the *median* household income for the United States was $44,389 in 2004 (DeNavas-Walt, et al., 2005). At the state level, the U.S. Census Bureau reported income based on a 3-year average median household income for 2002-2004. Maine had the lowest 3-year average median income with $39,395, while New Hampshire had the highest 3-year average median income at $57,352. Massachusetts and Rhode Island had a 3-year average median household income of $52,354 and $46,199, respectively. Although it is difficult to compare the *average annual* household income figures from the survey to the *3-year average median* income (average income tends to be higher than median income because income distributions are skewed), it appears as though the household income of the lobster industry is at or above the *median* incomes for New England and the United States.

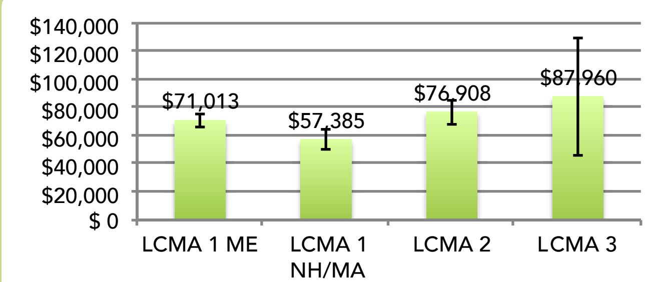

Figure 12: Average annual household income for active lobstermen in 2005 by LCMA.

Downeast Maine: Lobstering on the Edge?

Although Maine lobstermen have an average household income of just over $70,000, this varies by zone. Household income decreases as one moves Downeast.

Downeast lobstermen appear most dependent on the lobster resource, and yet have the fewest alternate employment options should the resource decline. According to the U.S. Census Bureau, the median 2004 household income in Maine in was $41,287. In Washington County, the 2004 median household income was $29,087. However the average Maine lobsterman's household earned $66,902 (+/-$3,962), and the average lobsterman's household in Zones ABC earned $58,680. Should the lobster resource decline, it is highly unlikely that lobstermen in Maine, and Downeast in particular, could find employment providing a similar income.

Washington County, Maine, the most eastern portion of the United States, is isolated from the rest of New England and this isolation has lead to its dependence on the marine environment. It is also the poorest county in New England and the second poorest in the United States (Hall-Arber, et al.) In a comprehensive report that compiled information on New England's fishing communities and ranked their dependency on fishing, the authors determined that Downeast communities remain the most fishery-dependent communities of all the regions they surveyed in New England (see http://seagrant.mit.edu/cmss/marfin/downeast.html for greater detail). Alternative occupations were also considered in relation to fishing dependency. If fishing were to cease in Downeast Maine, there would be, on average, two and one half fishermen available to work in any single comparable occupation and the labor market would quickly be saturated.

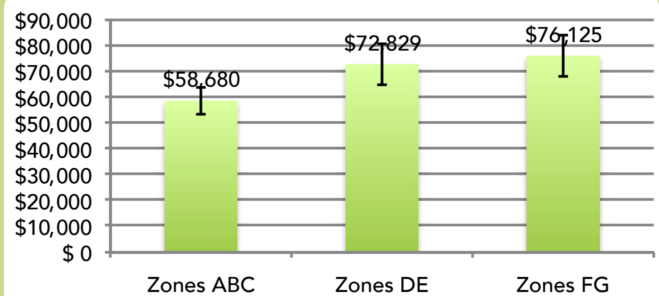

Figure 13: Average annual household income for Maine lobstermen in 2005 by areas.

Active lobstermen were the sole wage earner in a little less than half of all households surveyed. Among those households with other members who contribute to the yearly household income, nearly all are the spouses of active lobstermen. In addition to being most dependent on lobster for household income, those fishing in LCMA 1 also derive a lower percent of overall income from another household member. Although 28% of household income in LCMA 3 comes from another member of the household, in LCMA 1 ME only 16% of household income comes from another household member.

Lobster provides an average of 68% (+/- 3%) of household income in LCMA 1 ME, higher than in any other area.

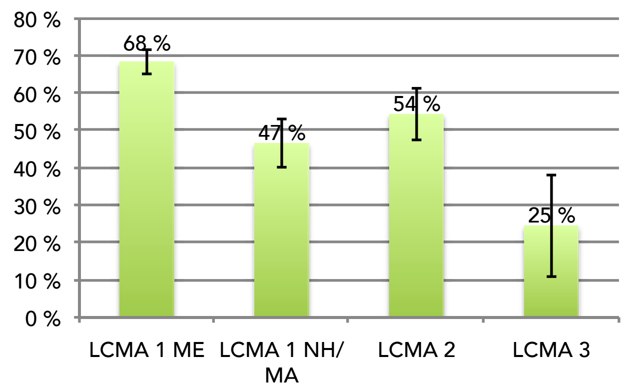

Figure 14: Percent of household income earned from lobster fishing in 2005 by LCMA.

Are there other fishing opportunities?

Across New England, about four in ten lobstermen of those surveyed hold other fishing permits. The most common permits are those for scallop dredging, shrimping, and "commercial fishing". Lobstermen in LCMA 1 (both ME and NH/MA) are less likely than those in LCMA 2 and LCMA 3 to hold other fishing permits.

Although more than a third of all lobstermen in the study area hold other fishing permits, less than a fifth of all lobstermen earned income from these permits in 2005. Again, lobstermen in LCMA 1 appear less likely to have earned income from other fisheries than those in LCMA 2 or LCMA 3. However, overlapping confidence intervals render comparisons between areas statistically insignificant.

What other job skills and/or training do New England lobstermen have?

Roughly two-thirds of lobstermen possess skills or training in fields other than lobstering. Of those with skills or training in other fields, 40% have skills as carpenters, tradesmen, or mechanics, while another 25% have skills in other types of commercial fishing, boat building, and maintenance.

A little over one-third of active lobstermen report they hold a degree or certification for a specific job, with over half of those saying that the degree or certification

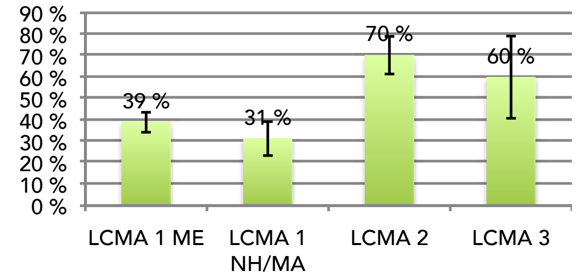

Figure 15: Percent of active lobstermen with other fishing permits in 2005 by LCMA.

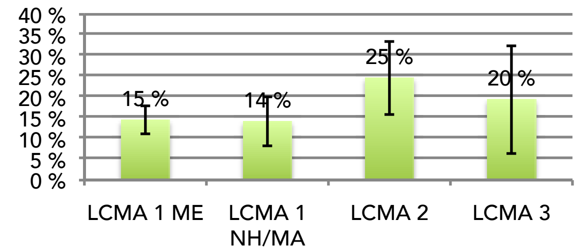

Figure 16: Percent of active lobster fishermen who earned income in 2005 from other fisheries.

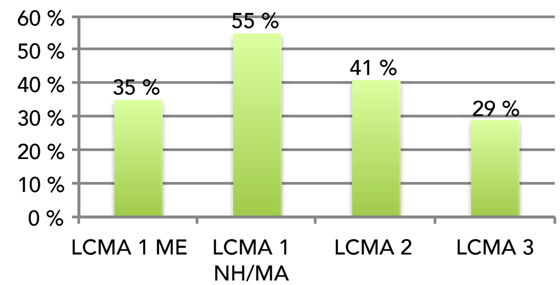

Figure 17: Percent of active lobstermen with some training in another field.

is a technical or vocational degree. Slightly more than 10 percent of those with degrees or certifications have a Bachelor's degree or a Captain's License/Marine Specific Degree. Only nine percent of active lobstermen who have a degree or certification report that they received federal assistance to obtain this training.

One in ten active lobstermen reports having received training on how to run a business. Among those active lobstermen who have not already received business training, almost half of lobstermen surveyed say they would **not** take advantage of business training if it were made available.

Do New England lobstermen have plans for retirement?

Maine lobstermen who fish in LCMA 1 are less likely than any other group to have retirement benefits: 70% of respondents in LCMA 3 said they or someone in their household has retirement benefits, compared with 51% of Maine lobstermen in LCMA 1.

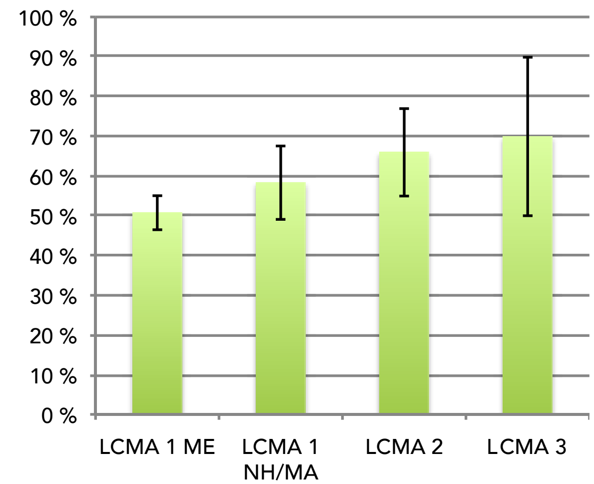

Figure 18: Percent of active lobstermen with retirement plans by LCMA.

Lobstermen Compared with Other Self-Employed Americans

In 2006, the National Association for the Self Employed conducted a survey of 3031 self-employed individuals that showed 66% were saving for retirement. This suggests that Maine lobstermen lag behind other self-employed individuals in terms of retirement planning. At 58%, LCMA 1 lobstermen in New Hampshire and Massachusetts are also behind, although lobstermen in LCMA 2 (66%) and LCMA 3 (70%) are on par with the national average.

More lobstermen in LCMA 1 than anywhere else plan to "never retire". Although only 4% of lobstermen in LCMA 3 and 1% LCMA 2 plan not to retire, in LCMA 1, 9% of Maine lobstermen and 14% of MA and NH lobstermen plan to continue working indefinitely.

Do lobstermen and their families have health coverage?

Among active lobstermen, almost a quarter have **no** insurance for anyone in their household. By contrast, 84.3 percent of the US population had health insurance coverage in 2004, with 15.7% of the population without health insurance. And in New England, the percentage of people without health insurance using a 3-year average for 2002-2004 was approximately 10.6 percent, well below the rate for the lobstermen surveyed (DeNavas-Walt, et al., 2005).

Among those lobstermen surveyed that reported they had health insurance, about a third get their health insurance through the spouse's place of employment; 25% indicate their health care coverage is through a state or federal program, like Medicare or Medicaid, and another quarter indicate that health insurance costs are paid out of pocket.

Among active lobstermen who have health insurance coverage for someone in the household, eighty-five percent report this insurance is full coverage while about 15% say the insurance is catastrophic only.

Respondents were asked to describe their health insurance coverage, and were classified as "insured" (full coverage), "underinsured" (catastrophic coverage only) or "uninsured" (no coverage). Approximately 25% (+/- 3.8%) of lobstermen from Maine in LCMA 1 are underinsured while only 6.9% (5.6%) of New Hampshire and Massachusetts residents fishing in LCMA 1 reported that they were underinsured.

Traditional Fishing Families: Are younger generations preparing to enter the lobster fishery?

All lobstermen with children were asked about their plans for their childrens' future. Thirty percent of respondents had no plans because their children were grown and "on their own". Twenty percent said they are saving for their child's planned college education, but offered no specific details on their type of savings plan. More than 10% of respondents said they had no plans for their childrens' education or training.

Of those lobstermen with children, roughly half said their children were either currently involved in or intend to make a career in the lobster industry. Mainers were significantly more likely to have children who are involved in or intend to enter the lobster fishery.

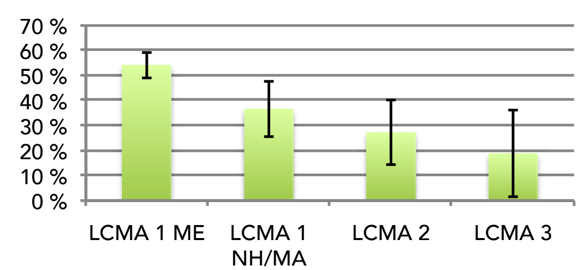

Figure 19: Percent of lobstermen with children who are in the lobster fishery or plan to enter the lobster fishery by LCMA.

Summary and Conclusions

It is difficult to make generalizations about the New England Lobster Fishery. Characteristics of the population vary according to geographic area, whether lobstermen fish seasonally or year-round, and a number of other distinctions. The upsurge in landings that occurred in the 1990's may have increased participation in the lobster fishery. However, the average age of New England lobstermen (roughly 50 years old) suggests that most lobstermen have arrived at their current position after a long history in the lobster fishery (an average of 30 years).

Despite the increase in effort in Maine in recent years, substantial latent effort still exists throughout New England. Increases in effort could put more pressure on the resource and potentially reduce profitability for existing full-time fishermen. Attempts to reduce effort by reducing trap limits would impact only the most active fishermen and could, by increasing catch per trap, create incentives for activation of latent capacity.

Although there are some lobster license holders that are making substantial revenues from lobstering, the net incomes of lobstermen after accounting for operating expenses are not high, on average, even for lobstermen that fished during more than two quarters in 2005. Recent increases in fuel cost will have further eroded profitability.

Lobstermen lag behind others in the region in terms of percentage of health insurance coverage. However, they are on par with other self-employed individuals when comparing retirement planning. One area of concern is that over half of active lobstermen use personal or family savings as a method to finance their lobster business, and about 1 in 5 use personal or family credit cards.

While the active lobsterman who participated in this survey had an average household income that was above the 3-year median for most of the country, that income was based primarily on lobster landings. The families of New England lobstermen, particularly those in northern New England, are dependent on the continued health of the lobster fishery to sustain the majority of their household income. This is especially true in Downeast Maine where there are fewer options for comparably profitable occupations. These findings are unlikely to surprise those familiar with the New England lobster fishery. The data on the socioeconomic health of the lobster fishery presented by this report provides a critical baseline against which we can check the pulse of the lobster industry over time.

Appendix

Inactive Lobstermen

Demographic Characteristics

The average age of the inactive lobstermen surveyed is 53. About 85% live in households with 1 or more other people, with about a third of those living in households with children under the age of 18. Among inactive lobstermen, eight in ten have at least a high school diploma or G.E.D., 14% have a Bachelor's degree, and 8% hold a graduate degree.

Lobstering in 2000-2004

Only about two in ten inactive lobstermen in 2005 landed more than 1000 pounds of lobster in any year from 2000 to 2004. The main reasons they did not actively use their lobster permit in 2000 through 2004 were that they were lobstering part-time only, had another job or occupation, were not lobstering due to health reasons, or were fishing for personal use or recreation only.

Involvement in the Lobster Industry

On average, most inactive lobstermen were involved in the lobster industry an average of 26 years and had held a commercial lobster license or permit for 22 years.

Among inactive lobstermen, over half plan to increase their lobstering activity in the future; furthermore, almost half of those who plan to increase their lobstering in the future expect it to become the primary source of income.

Among inactive lobstermen, one quarter indicate that their children are involved in or intend to lobster as a career.

Other Fishing Activities

Four in ten inactive lobstermen hold other state fishing licenses or permits. The most common permits among inactive lobstermen include state licenses or permits for Striped Bass, Multi-species permits, and Commercial Fishing. Among inactive lobstermen who hold federal fishing permits, 20% hold a federal permit for American Lobster, 18% have a federal Northeast Multi-species permit, and 16% hold a federal permit for Monkfish.

About 1 in 5 inactive lobstermen earned income from other fishing activities. Among those who earned income from other fishing, 20% earned income from Striped Bass, while 13% earned income from Commercial Fishing, and 10% from Sea Bass.

Household Income

Among inactive lobstermen, the average household income reported is $56,495. Among those who earned income from other fishing activities, 39% of household income, on average, came from these other fishing activities in 2005.

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