

NEW HAMPSHIRE'S FISHING INDUSTRY

A Summary Report

by

Willard Brownell

Report No. UNH-SG-AB-108

This study was researched and prepared with funds from the NOAA Office of Sea Grant, Department of Commerce, under Grant No. 04-7-158-44034.

The U.S. Government is authorized to produce and distribute reprints for governmental purposes notwithstanding any copyright notation that may appear hereon.

University of New Hampshire Marine Advisory Program

December, 1977

Published by the UNH Marine Advisory Program, a part of the UNH/U-Maine Cooperative University Institutional Sea Grant Program. Available at no charge from the UNH Marine Advisory Program, Marine Program Building, Durham, N.H. 03824, 603-862-1889.

Table of Contents

An Overview of New Hampshire's Fishing Industry 1
Boats and Equipment 3
Loans and Insurance 5
Fisheries 7
Gill Net 7
Lobster 7
Crab 8
Trawl 8
Herring 10
Surf Clam 12
Tuna 12
Unique Great Bay Fisheries
Recreational Fishing
Other Types of Fishing 14
Landing, Distribution and Marketing 15
Processing
A Final Word

An Overview of New Hampshire's Fishing Industry

In spite of having only 18 miles of coastline, New Hampshire has four active coastal fishing ports and a year-round, diversified commercial fishery. There are about 60 full-time commercial fishermen and 45 helpers who work fairly regularly with them. There are also 80-100 part-time fishermen who catch lobsters during the summer months (generally May-October). Many of them have other jobs as well. All fishermen in New Hampshire are independent and work on a shares basis. The combined annual income of these roughly 200 fishermen ranges from \$1,100,000 to \$1,500,000, depending on the success of their fishing efforts.

Regular and irregular biological rhythms cause great fluctuations in the catches from season to season and year to year. Long-term cycles are often responsible for drastically reduced stocks of certain species for one or several years, then a sudden resurgence to population levels as high as ever recorded.

In general, the best lobster fishing time is from July through October, though there are usually periods during that season when catches are poor and short periods at other times of the year (one usually comes in April) when the fishing is good. There is usually a strong run of cod in the spring and a big influx of spawning pollock in the fall. In the past two years, the trawlers have come up with extremely high yields of cod, haddock and pollock from smooth bottom areas.

A good fisherman can often make more than half of his profit for the year on the cod run which normally starts in late March and produces well until the dogfish come into the same areas and begin to clog up everyone's nets (usually by early July). Normally, the gill netters can best take advantage of this run. But, in some years large numbers of cod remain over trawlable bottoms, and the

draggers profit greatly.

New Hampshire fishermen, like most others around the country, are confused by the vast amount of fisheries regulations, quotas and legislation that has been enacted or proposed during 1977, and are fearful of the new controls that will be imposed upon them in 1978. The majority feels that yields from lobster trapping, gill netting and trawling have increased recently and they do not accept the reasoning that severe quotas are necessary to protect existing stocks from overfishing by small, limited-range vessels. Most fishermen were elated by the establishment of the 200-mile limit and the expected elimination of foreign fishing boats from these waters. They are now disillusioned by some high quotas granted to foreign vessels in U.S. waters while they feel American small-scale fishermen are being severely curtailed, restricted and regulated. A major concern is that traditional coastal fishermen will be forced out of business, causing economic depression in many seacoast communities, while the fishing is carried out by large, industrialized, highly-regulated trawlers based in a few large ports.

A few fishermen feel that the grounds are already too crowded and that limited entry measures must be taken before the existing stocks are wiped out. Whatever happens, the heated debates will continue and new controls will be enacted, such as weekly quotas on major species, minimum mesh sizes, closed seasons and fishing grounds, etc.

New Hampshire receives the second lowest revenue from fisheries of the five New England coastal states, but has the highest level of fishery activity per mile of coastline. New Hampshire fishermen operate as far out as 90 miles from shore and fish on and around all of the ledges and rock piles within that range.

Boats and Equipment

Most of the year-round lobster boats are downeaster type in the 34-42 ft. range, powered by gasoline engines of 125-175 h.p. They generally are equipped with depth recorders, radar, VHF radios and Loran A. All have hydraulic line haulers. Most local gill netters and draggers use the same basic design, with some structural and rigging modifications. Many of them are built by Bruno & Stillman Yacht Co. in Newington, while others are NOVI boats made in Nova Scotia where boatbuilding costs are lower. There are 55-60 of this type of boat now in use by New Hampshire fishermen.

Also very common are the 18-24 ft. fiberglass lobster skiffs, made generally by local boat builders (several of whom are part-time fishermen). The serious summer fishermen using these boats generally work with 150-200 traps for 4-5 months and have only small, gasoline engine-driven capstan haulers and outboard motors in the way of equipment.

Larger boats for dragging and gill netting (42-65 ft.) are powered by 250-350 h.p. engines and are equipped with the standard electronic gear plus hydraulic net haulers or trawl winches (either power take-off or hydraulic).

Gill netters may have as much as \$9000 worth of nets (60 nets of 50 fm. at \$150 per net), most of which will have to be replaced at the end of a full working season. The draggers use nets valued at \$8000-\$15,000, including the otter doors. A lobsterman may have gear valued as high as \$13,000 (600 traps at \$22 each). The total estimated value of boats and fishing gear owned by New Hampshire sea fishermen is \$2.7 to \$3.3 million.

The only fishing equipment constructed locally are the fiberglass boats, a few larger fishing boats, lobster traps and some incidentals. Most fishermen make their own traps, and many design and hang their own nets.

There are no commercial fishing gear supply stores in New Hampshire. Fishermen are forced to journey mainly to Portland and Gloucester to obtain the fishing provisions needed.

So far, very few boats have installed Loran C. Most captains are waiting for the prices to go down and for the system to begin functioning before they invest any money.

Loans and Insurance

Most fishermen deal directly with local banks to secure loans for gear and equipment. Bank loans range from $9\frac{1}{2}$ to $13\frac{1}{2}$ percent, depending on the fisherman's credit rating and how much he shops around. Many of them deal with the Seabrook Bank and Trust Company. Also available are SBA and Production Credit loans at $7\frac{1}{2}-8\frac{1}{2}$ percent, but most fishermen consider these systems to involve too much paperwork to be worth their effort.

Some fishermen who lost gear and/or boats in heavy storms secured SBA disaster loans at 3 percent to replace items that were destroyed. Many would take advantage of National Marine Fisheries Service loans if the program were reinstated.

Insurance rates on boats and gear normally run about 3 percent of market value per annum. Most local fishermen do insure their boats.

Fisheries

Gill Net

Until 1965, there were no gill netters in New Hampshire and only two each in Portland and Gloucester. Then, the monofilament nets were developed and other methods—such as tub trawls—were replaced by the easier to handle new type of gill net. Generally, these nets yield a high quality harvest, except for the "scalers" (fish which get caught in the bottom of the net and are banged around on the bottom).

Now, there are six boats that are essentially full-time gill netters in New Hampshire and eight boats that do gill netting part-time. Three more boats will be starting in 1978.

Fishermen work with mesh sizes of 5-7 in. (normally six) to harvest only the larger fish. The nets fish very efficiently and are relatively easy to pick on board and set back right away, as is the custom here now.

The limited bottom area available to gill net fishermen out of New Hampshire is becoming ever more restricted as draggers are becoming capable of working harder and harder bottoms, and lobstermen have traps set all over the nearshore rocky bottoms, at least during the five principal months of lobster season.

Two New Hampshire gill netters are equipped to go at least 100 miles out, such as to Georges Bank, and stay for 4-5 days. They can bring back 25-30,000 lbs. of groundfish from such trips.

One big problem with monofilament nets is that they fish effectively even when not attended. During periods of stormy weather when fishermen cannot get out to pull them, they kill a lot of fish. The same is true when fishermen just leave them out for a week or two because they are busy with other things.

Lobster

Lobsters have been the mainstay of the New Hampshire commercial

fisheries scene for many years. Virtually all fishermen in the state have done lobstering at one time or another, if only in a skiff with 50 traps. Currently, there are far too many fishermen in the summertime, causing much congestion in the near-shore areas. Still, the fishermen who work during most of the year, primarily on offshore ledges in the neighborhood of the Isles of Shoals, had a very good year in 1977.

This fishery has been well-documented and there is much information available (though catch statistics are not very accurate).

This fishery is subject to great fluctuations and it is difficult to determine how much is due to changes in population size and what part is attributable to poorly-understood natural phenomena. At any rate, several new controls are proposed for the fishery, such as the recent license fee increase to \$100 (this will not work as an entry limiter), the building of escape hatches into all traps for short lobsters, an increase of the allowable size to $3\frac{1}{2}$ in. and a closed season. Several lobstermen have successfully diversified into gill netting or dragging, while still fishing 100-200 traps. It may be necessary for others to follow suit if they want to continue as full-time fishermen.

Crab

Most lobstermen occasionally sell some of the crabs that they catch incidentally in their traps. Ed Heaphy sells a small quantity currently to Newick's Restaurant, but he found that it was not worth his effort to keep them in cages and periodically truck them to Boston markets. A study done by Peter Flanigan and Terry Doggett indicates that crab fishing as a side effort could be worthwhile if managed and marketed properly. Fishermen now throw them away and sometimes give a few to their friends.

Trawl

In 1977 there were five trawlers (draggers) operating out of New

Hampshire ports: Mystic Sea, Chaser, Osprey, Julie & Jill and Mary & Gloria.

These boats range from 38 to 65 feet total length and their total capital value is about \$220,000.

All of these trawlers operate the year around, but two of them fish sporadically. They generally operate on day trips to nearby grounds, with a maximum running time of 3 hours out, in depths of up to 90 fathoms. Sometimes they will go to more distant grounds for 2-3 days if the fish are scarce inshore and if the seas are not too rough.

Currently, they are using nets of $4\frac{1}{2}-5$ in. mesh, with cod ends of $4-4\frac{1}{2}$ in. There used to be an active trawl fishery for shrimp, but that has been banned due to the great numbers of juveniles of commercially-important fish that were killed in the small-mesh shrimp nets. New mesh regulations will likely set the minimum in the range of $5-5\frac{1}{2}$ in. Local fishermen feel that their nets could fish effectively with a mesh as large as $5\frac{1}{2}$, but that a large portion of the high-quality species now caught would be lost to them if the cod end has to be any greater than $4\frac{1}{2}$ in. mesh.

Even the small trawlers are very efficient these days, especially if they are equipped with sonar to allow them to drag right next to ledges and rock piles where the fish congregate. This forces the gill netters to pull back and set their gear strictly on "hard" bottom, for if they extend slightly onto trawlable bottom, they may be torn up by draggers.

Nets now in use are tougher than ever, and more durable, efficient rollers allow draggers to fish on rougher bottoms. In areas of high fishing pressure (such as around the near-shore banks) these methods can cause harm to bottom habitats and decrease the number of fish attracted to the grounds to spawn or feed.

Draggers catch a wide variety of species, but are primarily interested in

whiting (silver hake), flounder (mainly yellowtail), cod, pollock and haddock. The latter three are usually around untrawlable bottoms, but most tows yield small quantities of them, and during migration times the draggers sometimes make large catches of these commercially valuable groundfish. They also catch some halibut, monkfish, other hakes (whiting, for example), squid and lobster. Very little squid and lobster are caught, however, in the 5-inch mesh nets. In the summer they often get into dogfish, which must be cut out of the nets and cannot be used. These are considered a great nuisance. Whatever "trash" fish left over after the catch is marketed can usually be sold to lobstermen for bait at 5-10¢/lb.

The gross annual revenue of the five trawlers together is from \$170-230 thousand. Net income is from 20-40 percent of the gross. Shares are calculated on a basis of half for the boat and half for the crew, after the day's operating and marketing expenses have been paid.

New Hampshire draggers and gill netters operate only sporadically from about mid-December to mid-March due to the scarcity of fish, rough seas and icing of the boats and gear.

Herring

There are no regular herring fishermen in New Hampshire, but there are exploitable stocks available at various times of the year. Some lobstermen set gill nets in the summer (May-September) to catch herring and mackerel for bait in their traps, especially when there is a run of bluebacks in late spring. All species of herring are considered prime lobster bait when fresh because they are oily and bloody. Most lobstermen consider baitfishing to be too much effort for the small amount of money saved on bait.

Purse seiners from various Maine ports have traditionally followed the "sea herrings" south into New Hampshire waters in November and December. In

1977, several seiners and their associated carrier boats operated out of the new Portsmouth fishing wharf, but they were hampered by bad weather that kept them in port most of the time. They fish primarily around the Isles of Shoals, but cannot set their nets when winds are high, seas are rough, or the fish are over shallow, rocky bottoms.

Most of these purse seiners are small boats of 50-70 ft., employing nets of 16 fathom depth by 150-200 fm. length. Larger boats use nets of up to 40 fm. depth, and work farther offshore. The "sea herrings" caught late in the year are usually quite large (up to $1\frac{1}{2}$ lbs. or more). They are used to make canned fillets at Rockland, or exported frozen in 30 lb. boxes, primarily to Germany. The ex-vessel price recently reached a high of \$130/ton (it still goes as low as \$60 when catches are high), mainly due to the high demand abroad.

Early in the season, a large part of the catch is small herrings, primarily used for canning whole. Very little of this activity is ever practiced in New Hampshire waters. When the fish caught are of intermediate size, they are normally sold to lobstermen at around \$5/bushel (or as much as \$10 when bait is scarce and the lobsters are moving).

The captains of herring seiners and carriers owned by the canneries commonly earn over \$20,000/year and they have about three months off (January-March). As a supplementary activity, they pump the fish out of the net and through a scaling machine on the way to the hold. The scales are collected and sold for 10¢/lb. for use in various manufactured products.

A small seiner can catch as much as 80-100 tons in one haul if it successfully encircles a large school. A good night's worth of fishing can yield 150-200 tons.

1977 was a very good year for herring in the Gulf of Maine, and the approximately ten canneries and several exporters in Maine did well economically.

Surf Clam

Surf (or "Sea" or "Hen") clams are available in New Hampshire waters and are often dredged by boats from Massachusetts and Maine. One boat from Cape Cod is working regularly out of Portsmouth (the new wharf) as of December 20, 1977. Their most recent catch was 60,000 lbs. for 12 hours of dredging (ex-vessel price = \$6-7/bushel of 95 lbs.). They have been kept in port due to rough seas and freezing conditions during much of December. Most of the fishing recently has been done off Wells, Maine, and Salisbury, Mass., beaches.

Surf clam boats normally work close to shore in 20-35 feet of water, employing water forced by hose to stir up the beds so that clams can easily be collected by the following dredge.

The clams are sold to Boston area dealers for chowder and canning. Only the foot and adductor muscles are used.

Tuna

In past years, line and float fishing for bluefin tuna in the summer has provided an important supplement to the incomes of many fishermen. A good fisherman, going at it seriously, could gross over \$15,000 on tunas in two months, and still tend at least part of his normal number of traps.

In 1977, about 30 commercial boats did some tuna fishing, but less than 150 fish were caught by New Hampshire fishermen. The quota was set at only 1850 fish for the area from Gay Head to the Canadian border. Most of the New Hampshire catch was made on Middle Bank (a 2½-4 hour run from Seabrook). Some went to a more productive area around Provincetown and fished there for many days at a time. Only a few tuna were even sighted off the New Hampshire coast this season. Commercial fishermen are annoyed by the excessive competition that has come from sport fishermen in recent years.

Unique Great Bay Fisheries

Dating back to some of the earliest settlements in New Hampshire, three unique aquatic animals have been fished commercially in Great Bay. All have a wide range of salt tolerance. Traditionally, the most important (and the most resident) organism has been the oyster. Fishermen still use small skiffs and long-handled tongs for gathering oysters, much as they did over 200 years ago. Over-fishing and pollution problems have rendered these stocks unexploitable as a commercial product, but oysters are still important to a number of recreational fishermen.

The catadromous American eel is another species that was much more soughtafter for food and profit than it is now. Currently, they are caught sporadically in the tributaries of Great Bay by both commercial and recreational
fishermen. They are fished either with large, baited, conical minnow traps,
or with long-poled trident spears through the ice in winter. The latter method
is dying out, as the spears are no longer fabricated. Some local fish markets
will buy fresh eels to sell to a few enlightened customers. There is an
export firm in Newburyport that buys live eels from fishermen for shipment
to Western Europe and Japan. Current stocks of eels in the Great Bay basin
would probably not support a significant increase in fishing pressure.

The third Great Bay fishery is for smelt. The smelt come in during the winter to prepare for spring spawning and are caught on hooks through the ice by countless local fishermen, many of whom wholesale the smelts to area markets for \$.50-.75/lb. A good fisherman can catch 300 smelts in four hours on an incoming tide. Often as many as 1000 ice fishing houses can be seen on the Bay, most of them in the Newington-Greenland area.

Recreational Fishing

Private boats using New Hampshire coastal waters for recreational

fishing number in the thousands each year. There are also four major party boat businesses that operate a total of 14 boats, and three individuals with smaller boats, for taking people out on day fishing trips.

The total capacity of the party boats is about 600 fishermen. Most of them operate daily from early May to early October, usually making two 4-hour trips per day. Some of them make weekend trips also in April, and up to early November.

Most recreational fishing from party boats is for groundfish (mainly cod, pollock and haddock), though some boats take people out to fish for mackerel as well.

Other Types of Fishing

Hand lining, jigging, tub trawling (bottom long lining) and trapping for groundfish (primarily cod) have all disappeared from the scene. The ease of fishing with monofilament gill nets and the efficiency of well-organized draggers have rendered the other methods obsolete.

Tub trawling with mussels, herring or mackerel for bait yielded high catches per effort up until the early '70's, when many gill netters started working the same spots, greatly increasing the fishing pressure. No serious line fishing has been done in New Hampshire for at least three years, with the exception of the tuna float and hand line fishery. Cod trapping was phased out several years earlier.

Landing, Distribution and Marketing

New Hampshire has four seaports with piers where fish and lobsters are landed, plus several private docks (primarily in the Piscataqua estuary) for the landing of lobsters. In the Seacoast Region there are 14 retail stores (pounds) that buy lobsters directly from fishermen. Lobstermen sell most of their catch to these local pounds, which also wholesale (primarily out of state) when their supply becomes too large. New Hampshire Lobster (Hampton Beach) buys from the greatest number of fishermen. Some pounds, and some fishermen themselves, keep lobsters in cages underwater ("cars") to be sold in late winter when only a few people are fishing, the catches are negligible and ex-vessel prices may reach \$4 per 1b.

The four landing ports have adequate facilities for off-loading, fueling and mooring the boats. But, any other services required must be secured at private seacoast area marinas at high cost, or at out-of-state fishing centers such as Portland and Gloucester. Some Portsmouth-area fishermen land their fish at the town dock in Kittery.

There is only one small fish store (at Rye Harbor) that deals primarily in fresh New Hampshire fish. The other fish markets (9 or 10) sell mostly lobsters and clams, plus fish and shellfish that come from Boston and Portland distribution centers. They buy some fresh specialty items in season from local fishermen (such as swordfish, tuna, squid, mackerel, smelt and herring), and occasionally stock high-value groundfish from local sources if they have reasonable assurance of having a regular supply. Normally, however, they prefer to deal with a dependable out-of-state supply, even if the fish are less fresh and more expensive.

Most fish caught by New Hampshire draggers and gill netters are trucked

directly from the boat to Boston fresh fish distribution centers. A small amount goes to Gloucester or Portland. Southern Maine Fisheries of Eliot, Maine, is the principal carrier for local finfishermen, though a few deal with Wilkins Seafood of Newburyport or Captain C Fisheries of Salisbury. Typically, the transport takes 8-9 percent of the value of the shipment, and the commission agent in Boston gets about 6 percent. Fishermen are not pleased with the existing system, as they have no control over the marketing process. They feel that the price fluctuations follow no logical pattern and that they normally do not get the fair market value for their fish. As an example, the high quality fish caught by New Hampshire draggers in short hauls on day trips goes for the same price as the catch from boats that operate longer tows and stay out for several days. But, the former is re-sold at a premium price.

Since most New Hampshire fish has been shipped out of state for years, most natives of the state are not accustomed to eating really fresh fish; thus, the demand is low. The freshest fish available in the region is at the Finest Kind Fish Market in York. They have a small clientele of people who know that really fresh fish is a far cry from frozen fish sticks, or even 4-day old fillets. The market at Rye Harbor does a much smaller trade in high-quality fish, and a large portion of their business is out-of-staters in the summer.

Processing

No New Hampshire fish is processed in any way locally, except for one very small fish smoking operation that started in the middle of 1977. Southern Maine Fisheries is building a processing facility just over the border, and aims to handle a large quantity of New Hampshire fish.

There is an export market for eels, herring, squid, mackerel, dogfish, whiting, monk's tails and skate (to Europe and Japan). These species are already marketed to some extent by several companies in Portland, Newburyport (eels) and Gloucester (primarily Walter Frontero at Oceanside Fisheries, 617-283-4083). Since the quotas for foreign vessels have been drastically reduced by the 200-mile limit legislation, it appears that the Europeans, at least, will be disposed to buy from U.S. fish companies the kinds of fish that they used to catch here themselves.

A processing facility could be established in New Hampshire to take advantage of fish caught in the region of Cape Porpoise to Newburyport. Fresh, smoked, salted and quality frozen fish could be made available to inland markets as alternatives to the largely foreign-caught fish sold in low-quality frozen blocks to inland retailers. The establishment of this type of simple processing facility in the Seacoast Region would generate much greater economic benefit from locally-caught fish, make the consumption of fish far more appealing to residents of inland areas, offer certain products for export that are in great demand in other countries and encourage more fishing boats to be based in the area. It is likely that it would also encourage more fishing activity in the region.

A Final Word

There are currently about 100 people who earn most or all of their income directly from fishing in New Hampshire, and another 100 who earn a significant portion of it from fishing. Many others reap indirect economic benefits from the fishing industry. And, fishing effort is on the increase: five newly-built boats will be launched for the 1978 season; another 8 or 10 will be gearing up to do some gill netting or dragging for the first time; and more boats are starting to work the more distant banks.

Some stock assessment studies carried out by the National Marine Fisheries Service have indicated that existing populations of several commercially important species are on the decline (such as haddock, cod, pollock, tuna, herring and lobster). Many fishermen strongly dispute these statistics, based on higher-than-ever catches they have recently made of particular species. Others complain that the nearby fishing grounds (within a three-hour run) are so crowded that there is no place to work their gear. Draggers are tearing up the bottom, and untended gill nets are killing fish. Canadian boats at times are allowed higher quotas for some species than our own vessels.

Construction of the Seabrook nuclear power plant is beginning to impair the activities of fishermen through prohibition of traditional fishing efforts near the site and on the grounds where offshore surveying is being done. Fishermen are reporting that lobster gear is being dragged up, lobster retention areas are subject to increased siltation and the Hampton fishing port is becoming increasingly congested.

No doubt we will have to devise some fair means for limiting entry into the fisheries, but this should be done in ways that the most productive and conscientious fishermen are favored. Above all, it must be recognized that fishermen make some important contributions to the economy of the State, and the social fabric of the fishing community is the backbone of New Hampshire's coastal zone.

There is currently no one who assists fishermen in resolving their problems, in improving their productivity and markets, or in representing their interests anywhere, except the New England Regional Fisheries Management Council.

The immediate burst of activity by local and out-of-state fishing boats around the new Portsmouth pier as soon as it was completed is one indication that more fisheries-related facilities are in demand. Especially needed are a well-equipped boat repair yard, a processing facility for reaching distant markets with quality fish, and a fishing gear provisioning center.

EX-VESSEL PRICE RANGES FOR FISH LANDED IN NEW HAMPSHIRE, 1977

	Cod	Pollock	Dogfish	Haddock	Herring
High	.90	. 35	.12	1.00	.06
Average	.50	.25	.10	.50	. 05
Low	. 15	.14	.05	.20	.03

	Pollock	Squid	Yellowtail	Whiting
High	.42	.15	.80	.15
Average	.22	.10	.40	.10
Low	.08	. 08	.20	.08