71 Mt. Auburn Street,
Cambridge 38, Mass.

July 24, 1947

Mr. Richard E. Reed, Commissioner,
Dept. of Sea and Shore Fisheries,
Vickery-Hill Building,
Augusta, Maine.

Dear Mr. Reed:

Enclosed herewith is a copy of manuscript by Edward A. Ackerman. As you may recall, this is the result of a study undertaken cooperatively by Harvard University, the Fish and Wildlife Service, and the Maine Department of Sea and Shore Fisheries.

I have discussed publication of this paper with Dr. Walford, and apparently there is no possibility of the Fish and Wildlife Service publishing it. We are short of printing funds, and the subject does not fit in with any of our established series. Dr. Walford suggested that I send this along to you, with the thought that your department or some other interested department of the State of Maine might find ways of publishing it. It is extremely well written and is illustrated with excellent photographs. (We have only a single set of the photographs and I have not forwarded them with this copy.)

This was written just before the war. Some of the statements need to be changed to account for developments during the wartime period. The principal changes which should be included are the development of the Maine Lobster fishery and the development of the Mussel fishery.

Dr. Ackerman has edited one copy which we have here in Cambridge. Most of his changes were relatively minor. He did this very hurriedly as he was preparing to depart for Japan, where he is now. It needs some more editing, which I think we can do between us.

If you can find ways of publishing this, I think we can prepare the editorial changes and send them to Dr. Ackerman in Japan for his approval. I do not think he would object to our editing it, and I am sure he would be glad to see it published.

Very truly yours,

WILLIAM F. ROYCE
Acting in Charge, North Atlantic
Fishery Investigations.

WFR/efg
Enc. Mss, Maine's Inshore Fishing Industry--Present Status and Possible Readjustments

501 B

UNITED STATES
DEPARTMENT OF THE INTERIOR
~~DEPARTMENT OF COMMERCE~~

~~BUREAU OF FISHERIES~~
Fish and Wildlife Service
A-210, Harvard Biological Laboratories,
Cambridge, Mass.

July 30, 1940.

To Whom It May Concern:

This will introduce Dr. Edward A. Ackerman, Field Investigator of the Fish and Wildlife Service (formerly Bureau of Fisheries), United States Department of the Interior, who is conducting a survey of markets for Maine fish, and of methods and costs of distribution. This survey, undertaken cooperatively by Harvard University, the Fish and Wildlife Service, and the Maine Department of Sea and Shore Fisheries, is being made for the purpose of developing improved methods of distribution in order to lower transportation costs on Maine fisheries products.

Anything done to assist Dr. Ackerman in his investigation will help to make his final conclusions of practical value to the Maine fisheries.

Wm C Herrington

Wm. C. Herrington,
In Charge, North Atlantic
Fishery Investigations.

47-61

RICHARD E. REED, COMMISSIONER

STATE OF MAINE

DEPARTMENT OF SEA AND SHORE FISHERIES

VICKERY-HILL BUILDING

AUGUSTA

October 29, 1947

William F. Royce, Chief
N. E. Fishing Banks Investigation,
U. S. Department of the Interior
Fish and Wildlife Service
Woods Hole, Mass.

Dear Bill:

Dr. Ackerman's manuscript was sent along to 71 Mount Auburn Street, Cambridge 38, Massachusetts, in the same mail as our letter of October 3. It has not been returned here, so possibly was sent along to Washington. I sincerely hope that it is not lost, and if you can suggest any ways for us to try to trace it, please let me know.

Sincerely yours,

Commissioner

OCT 30 1947

RER:jb

FISH AND WILDLIFE SERVICE
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxx

Woods Hole, Mass.

October 30, 1947.

Postmaster,
Cambridge A Branch,
Boston 39, Mass.

Dear Sir:

Enclosed is a notice of Printed Mail in the name of William F. Royce on which postage is due. Since this is official mail for the U. S. Fish and Wildlife Service, will you kindly forward it in the usual way.

We are wondering why such mail is held up in your office since we indicated in our change of address notices for our office and staff members that we are located at the U.S. Fish and Wildlife Service, Woods Hole, Mass. The transfer to Woods Hole was made by official orders, so that, according to the information we have been furnished, all mail regardless of class should be forwarded without additional postage. We would appreciate it if you could take care of this for us in the future.

At the present time we are looking for a package from the Maine Department of Sea and Shore Fisheries, Augusta, Me., addressed to me. This was forwarded to our address at 71 Mt. Auburn Street, Cambridge, Mass. on October 3. Will you please make every effort to locate it since it contains a valuable manuscript. Anything you can do on this will be very much appreciated.

On our part, we will again notify our correspondents that our address has been changed, so that you will be saved the necessity of forwarding so much of our mail.

Very trulyyours,

WILLIAM F. ROYCE,
Chief, New England Fishing
Banks Investigations.

EIM

P. 28 missing

MAINE'S INSHORE FISHING INDUSTRY--
PRESENT STATUS AND POSSIBLE
READJUSTMENTS

by
Edward A. Ackerman
U. S. Fish and Wildlife Service

41-01

The typical Maine fisherman for many years has lived in the past. During the last five decades few of the inhabitants of the little coastal towns which dot the islands and promontories of this rocky coast have had anything to encourage them. One by one they have watched the economic resources upon which their communities were based decline or disappear, with nothing replacing the losses. The salting industry, herring smoking, sardine canning, bait freezing----with few exceptions are all dead or dying as far as most small communities are concerned. Add to these a decline in the lobster fishery to one-fourth its former volume, the disappearance of the salmon fishery, the depletion of some shellfish flats, together with pollution of others, alleged decreasing abundance of fish on inshore grounds----and even an outsider can understand the defeatist attitude of the average inshore fisherman.

The attitude and opportunities of the fisherman, furthermore, aften determine the outlook of the community in which he lives---- for fishing has been, and although now feeble, still is the life of many coastal villages. Over much of the coast, with its cool summers and rocky soils, agriculture is scarcely more than vestigial; and lumbering, which once provided some income to these people, offers little return at present. Some favored districts, especially west of the Penobscot, have benefited so much from the tourist trade that the community itself is no longer a problem, but there are many others where the occasional stray tourist or yachtsman is considered more a curiosity than an economic asset, In these areas prosperity or poverty, not only for those who follow the sea,

Figure 1. No word description of this Maine village is necessary to tell about its activities, its relations with the rest of the world, and its prosperity.

but also for the grocer, the garageman or the preacher, is dependent ultimately on fishing.

Something more than the fishing industry itself, then, is at stake when one considers the present and future status of Maine fishing.

That Maine fisheries have been slowly dying in the last fifty, or even in the last twenty years, is a fact too well known in the minds of fishermen and detached observers to require much elaboration here. S ome of the more valuable species reached their peak catch fifty or more years ago (lobsters for example) and the total catch of Maine has been on the downward grade since 1919. This has been especially true for the inshore fisheries, which form the sole resource of the small communities, now that vessels[1] land almost exclusively in three or four New England ports. In 1919 the inshore fisheries of Maine[2] produced 126,238,426 pounds of fish, valued at $3,204,591. By 1937 this had declined to about two-thirds of that amount in both weight and value, (85,266,715 pounds, $2,425,268) In the same two years there were approximately equal numbers of fishermen engaged in the inshore fisheries (5,500) Thus the reduced total income also represented a reduced income to the individual fisherman, and correspondingly less money circulating

1. "Vessel," as defined by the U. S. Fish and Wildfire Service, is any boat of 5 tons or more net.

2. Landings of the inshore fisheries were calculated by subtracting the vessel landings at Portland from the total landings for the state of Maine in the given years.

Figures 2 and 3. Maine fishermen's homes. Above, in a town; below, an isolated shore home.

in the fishing community. As recent years for Maine fishermen go, 1937 was considered a "good" year, both from the point of view of catch and prices. 1939 and 1940 figures will show a still greater decline.

Actual figures as well as general impressions therefore point toward conditions among the inshore fishermen which cannot persist indefinitely. Two eventualities arise----one a continuance of the laissez-faire, come-what-may attitude on the part of both fishermen and government, the other, initiation of an intelligently planned, well-integrated program for the future of the inshore fisheries. If it is to be the former, one need not be a seer to forecast still further reduced income, declining population in the fishing towns, exodus of the more progressive members of the community in response to opportunities elsewhere, declining standards of health and comfort----in short "Tobacco Road" conditions in the heart of Yankee country. All these things have been happening slowly, but perceptibly in many Maine communities for the past ten years. Prolonging this state of affairs is excused by some as being acquiescence to the irresistible centralizing forces now operating in the fishing industry. In that case all we have to do is to sit back with those who believe only in survival of the fittest and say "if they can't make a living where they are, then let 'em move out."

But there is a growing conviction among many observers that a further concentration of people in the large population centers (which, presumably, is where emigrees would go) is a thoroughly

undesirable social condition for the nation, Furthermore it can easily be proved, at least as far as the fishing world is concerned, that complete centralization of the industry will not lead to the most effective use of our resources. In other words we should plan for the inshore fisheries and their dependent communities in such a way as to allow them a decent existence. This cannot be done, however, without first providing a detailed factual background for the plans and recommendations to be made. Both the federal and the state governments have accumulated material on biology and fishing operations which are essential parts of that background. But one important part was neglected until this investigation commenced. In order to plan intelligently we must know what sections of the fishery offer profitable fields for encouragement, what ought to be discouraged. One clue to possibilities is detailed knowledge of the present trade in Maine fish, toward which this report has been directed. In an analysis of the location of centers of supply, costs of production, marketing areas for Maine fish, centers of distribution, methods and costs of transportation appear some significant indications of what the Maine inshore fishery can be in the future.

The average Maine inshore fisherman is not a specialist. Because of the marked seasonality of most fishing operations, he turns his hand to whatever he has the equipment to exploit opportunely. He may go scalloping in the spring, he may seine, tend a weir, or go line-trawling during the summer, and end by lobstering through the fall and early winter months. Except for a relatively

Figures 4 and 5. In some localities along the coast, farming supplements the fisherman's income, but in many others it is impossible. Above, the environs of the town of Vinal Haven; below, the fisherman-farmer community near Lubec.

few fishermen no one part of the inshore fishery affects a special group. The majority have wide enough interests so that an investigation does not have to take account of lobster fishermen, line-trawl fishermen, and equivalent groups seriatim, but considers them all simply as fishermen. A discussion of any one phase of the fishery will usually embrace in some way or other a majority of Maine inshore fishermen.

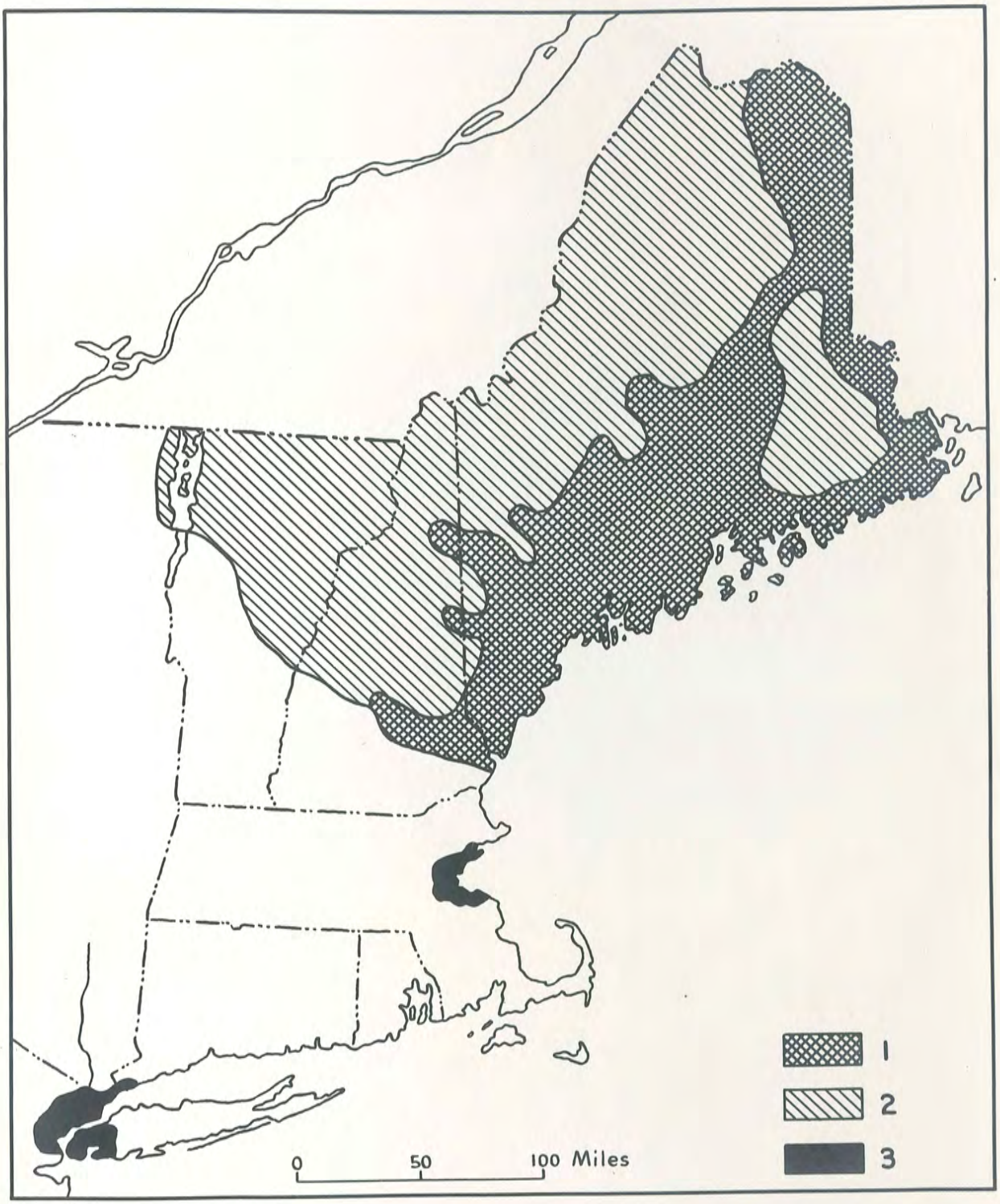
The fisherman's catch, however, once it becomes an article of trade, must be considered in separate groups, because of differing methods of handling, transportation, and destinations. For purposes of this investigation the Maine fishing industry has been divided roughly into the groups brought out in the wholesaling organization: the lobster, herring, groundfish, and clam trades, and the minor businesses associated with the marketing of crabs and scallops.

These groups of wholesalers recognize five principal areas: 1) the Maine marketing area, which includes all territory within the United States more cheaply reached from Maine ports than from other fishing ports;[3] 2) Boston and southern New England, where some Maine products are shipped for redistribution; 3) the New York - Philadelphia - Baltimore area; 4) Midwestern United States (the North Central States); and 5) the South (southeastern states). The states west of the Great Plains, within reach of the many fishing ports on the West Coast, are negligible markets for New England

3. Roughly the "Maine marketing area" includes Maine itself and the northern halves of New Hampshire and Vermont. See Figure....,...

Figure 6. The marketing areas for Maine fish. 1 and 2, areas within which Maine ports have cheaper transportation rates than competing areas. 1) Area of principal importance in sales; 2) areas of secondary importance. 3) Markets of major importance to Maine for disposal of specialties or surpluses.

Frozen fish are distributed over a wider marketing area the principal destination being in the southern part of the Midwest.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products, and are mentioned seldom. There is thus a twofold organization of the material which follows----the division according to the type of trade, and the incidental discussion of the destination of products of that type.

THE TRADE IN GROUNDFISH AND RELATED SPECIES [4]

Fifty years ago, and for a decade subsequently, inshore groundfish formed the backbone of the Maine fisheries. Even as late as 1919, when sardine packing and herring smoking were in full swing, and when the price of lobsters had increased to ten times their 1890 value, the groundfish trade gave inshore fishermen more than a third of their income.[5] But by 1937, when inshore fishermen received only a little over $100,000 for the groundfish they caught, it provided less than a twentieth of the fishing income of Maine. Of all types of fishing the decline in importance of inshore groundfish has been the most spectacular, for it concerns species which still yield the staple products of the New England if not of the Maine fishing trade.

The most generally repeated reason for the decline in inshore groundfish landings is the disappearance of the domestic market for salt fish, Three-quarters of the catch went to salteries when this fishery was at its best, so that when fresh, frozen and

---

4. Groundfish are here defined in the usual manner---any bottom feeding fish. Cod, haddock, hake, cusk, wolffish (catfish), halibut, flounders, pollock, whiting, and rosefish are the principal species. Related to these species <u>in trade</u> are some pelagic and anadromous fishes, especially salmon, mackerel, swordfish, and smelt. Relation means nothing more than that they are handled through the same channels as groundfish, as distinguished from herring, which are treated and handled by firms which do not deal in groundfish at all.

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5. Total income to Maine fishermen in 1919, $3,889, 035, Lewis Radcliffe, Fishery Industries of the United States, 1920, Washington, 1921, p. 126

canned fish gradually killed the old taste for salt fish a reduced catch in Maine was an inevitable result. In reality the reasons were more complex, for unless the trade handling inshore groundfish had experienced other difficulties at the same time it could have shifted its products to conform to the new demand. But the advent of the otter (beam) trawler and its mass-production of fish, together with a premium on time in fresh fish transportation, placed Maine ports, from a hundred to four hundred miles farther from the market than Massachusetts, at a decided disadvantage. As compared to Boston the seasonal character of landings, and the one to three cents per pound additional freight charges produced additional disadvantages which gradually forced the small-port shipper from the national market. Even freezers did not survive, as now abandoned buildings at McKinley, Vinal Haven and Port Clyde will testify. The only fish-freezing plant east of Portland is the small one located in Rockland. But past failures alone cannot be a clue to the future of this phase of the fishery.

With the exception of the few fish caught by hand liners for their own families, groundfish are now landed at only fourteen ports in Maine. Portland of course dominates in a striking manner this phase of the industry, having half again as much as all other Maine ports together. Even considering the inshore landings alone Portland is still the principal landing place. (Table 1).

The Rockland-Port Clyde district was next, the Mt. Desert Island district, Boothbay-New Harbor Deer and Swan's Island and the Eastport district following in that order. The great preponderance of the Portland district in Maine fish landings represents

Figure 7. Vinal Haven, until 1940, had a well equipped plant, capable of freezing, salting and caring for byproducts. Although a paying plant in the salting days, it has now been abandoned, because of the isolation of the town, and irregularity of fish production in the area.

TABLE 7.—Receipts of groundfish and species related in trade at Maine ports by Maine wholesale dealers - 1939[1]

Port	Number of dealers	Value
Eastport	3	[2]494,100
Lubec	1	
Jonesport	1	
Prospect Harbor	1	3,377,300
Southwest Harbor	1	
Manset	1	
McKinley	1	
Swan's Island	2	1,597,000
Deer Island	3	
Vinal Haven	1	6,153,200
Rockland	1	
Owl's Head	1	
Port Clyde	1	
New Harbor	1	2,519,900
Boothbay Harbor	2	
Kennebunk	1	
Total	22	14,141,500
Portland	8	
Vessels offshore [3]		8,764,400
Vessels inshore		8,200,000
Boats inshore		3,161,000
Total	8	20,125,400
Grand total	[4]29	34,266,900
Sold directly to consumer by fishermen or consumed by fishermen's families		[5]1,800,000
Grand total		36,066,900

1/ Based on dealers' records or estimates.

2/ Landings from Canadian boats not included.

3/ "Offshore" grounds for the purpose of this report are all those beyond the range of small boats which fish inshore. The limit of the small-boat fisherman is about 30 miles from port.

4/ Ten of these dealers handled only very small amounts of groundfish, accounting for less than 1,000,000 pounds among them.

5/ Estimate which includes some groundfish, alewives and smelt. 1,600,000 pounds of alewives were caught in Maine in 1939, few of which entered the regular fish trade.

a great change from the 1910-1920 period, and an even greater one when compared to fifty years ago. In 1919, although Portland was already important in the industry, landings at other ports by inshore boats comprised 32,800,000 pounds of groundfish, while Portland accounted for about 16,500,000 pounds. During the same period the number of plants handling groundfish in the small ports declined from 82 to 21, while those in Portland fell from 17 to 8. If a still earlier year is taken for comparison the contrast is even greater. In 1889 landings by inshore boats alone were 71,000,000 pounds, while Portland received only 12,000,000. To the landings made at the lesser ports in this period must be added the product of the sizeable vessel fishery which ran from the small towns----a supplement of about 25,000,000 pounds more. Thus from a peak of about 96,000,000 pounds fifty years ago the smaller Maine ports have declined almost steadily to the 17,600,000 pounds which they received together in 1939. One can make the observation, therefore, that the inshore groundfish trade is in a stagnant or declining state, while the Portland fishery is managing to hold its own, with perhaps a slight increase in landings.

There are four major ways of preparing groundfish for sale to the consumer. Being most palatable fresh, as much as possible is sold fresh whole, or in sticks or fillets. However, the amount which can be used in fresh form is limited by the size of the nearby market, and by the speed and economy of transportation to distant markets. The remainder of the catch must be preserved in some form, or it is unusable as food. Since the earliest days of

Figures 8 and 9. Types of fishing boats used in the Maine inshore industry. Above, small draggers; below, inshore line trawl boats.

ALMA
CAPE ELIZABETH

YARMOUTH
N.S.

fishing this principle has held true, salt being the important preserving agent at first, and in recent years, canning and refrigeration. Maine groundfish appears in trade in all four forms, but the relative importance of each has changed a great deal in the course of years.

A. THE SALTING TRADE.

Twenty years ago two thirds of the groundfish landed in Maine went into the salting butts. In 1939, however, barely a fifth of the greatly diminished production was salted. Of the more than eighty salteries operating in Maine in 1919 only seven remained in 1939. These seven were three less than there were the year before. The 3 and 3/4 million pounds of fish which they salted together represent a negligible part of the total salt fish supply of the United States, now 95 percent imported. In 1937, the last year for which figures on total imports are available, the equivalent of 109,000,000 pounds of fresh cod, hake, pollock, cusk, and haddock (51,000,000 salted) were imported into this country in spite of varying duties levied upon salt products. Quite evidently, then, one should draw the conclusion that the Maine salting industry is struggling not only with a declining market,[6] but with outside competition which it finds increasingly difficult to meet.

6. This phase of the salting industry problem was aptly and truthfully described by one merchant when he said "Every time I read the obituary of a person more than sixty years old, I know that I've lost another customer for salt fish."

Figure 10. Although groundfish salting is still carried on in Maine, it is a dying phase of the industry. A few flakes care for the surplus of this wholesale fresh dealer, Boothbay Harbor.

Or, to look at the matter in another way, there still is a market for salt fish in the United States---quite large enough to absorb twice the present total production of Maine groundfish, but Maine cannot produce salt fish cheaply enough to compete with foreign producing areas. Canada is mentioned frequently as the source of all difficulty for the Maine saltery, but in reality Newfoundland, Iceland, and until 1940 Norway created market conditions which worried even the Canadian producers.[7]

Without the artificial stimulation of a considerably increased duty on salt fish entering the United States (which, through an increased price would probably reduceeconsumption greatly) it would be unwise to attempt any resuscitation of the Maine salting industry. Maine, in fact, should be thankful that it does not have to resort to salting to preserve its groundfish, and leave that ancient method of preparation to the isolated parts of the world where lack of adjacent markets force its use. Maine, although isolated from large markets when compared with other fishing centers in the United States, is much more fortunate than Newfoundland or Iceland, where fishermen must take what they can get for their product or starve. In this field the Maine fisherman and salt fish producer are working against people who live on a standard much nearer the bare subsistence level than their own.

7. See MacKenzie, O. F., and F. H. Zwicker, "Reports on Markets for Dried and Pickled Fish,"(Canada Department of Fisheries, Ottawa, 1938) for an intelligent discussion of the salt fish situation. Although written three years ago the conclusions set forth hold true in principle today.

This fact does not appear in statistics on the salting industry quite as clearly as it might. In 1937, for example, the average value to the wholesaler of all "green" salt fish (43 percent of moisture or greater) imported into the United States was 4.2 cents per pound. In the same year Maine salt fish in the same classification had a value of only 3.7 cents a pound. Maine, according to those statistics, had a price advantage over foreign shippers of a half cent per pound---by no means a negligible advantage as far as this trade is concerned. It would seem, therefore, that an expansion of the Maine industry might be warranted on the basis of this difference. However, taken as a whole the Maine product was and still is considered by buyers to be inferior to the imported article. Two-thirds of the Maine production was composed of salt hake and pollock, which always sell at a discount in the trade as compared to cod, although the consumer rarely knows which he buys when he asks for prepared salt fish. The imported salt fish is composed of an estimated 70 percent cod and 30 percent of other species. Actually the foreign producer sells his poorer fish as cheaply or cheaper than the Maine producer (taken as an average).

But even if Maine salteries do no more than meet the prices of foreign concerns it might be argued that the state could use more than four and a half million pounds of its groundfish for salting. Here, however, the supply of fish is a limiting factor. If Maine salteries paid fishermen the market prices of fish determined at Boston and Portland they would not operate for a year.

Turning again to 1937 for the sake of consistent comparison, the average price of all cod, hake, cusk and pollock landed in Maine was 2.6 cents per pound to the fisherman. If fish used for salting were purchased at this everage price the producer would have broken even only at a price of 6 cents or more for his finished article. Compared to the price of the imported fish, 4.2 cents, it is quite evident that Maine could offer no competition. The salteries of Maine today are limited in their activity by the amount of fish they can procure at prices of a cent a pound or less. This means one of two things----fish can be salted only in places so isolated that they have a very limited demand for fresh fish, or during seasonal runs, when the fisherman's cost of operation is reduced. For the past several years Maine salteries have paid more than a cent per pound for their fish only on rare occasions. The average, although difficult to determine, has been more nearly three quarters of a cent, and some instances of fish at 4.10 of a cent per pound were reported. In a later section this report will present material to show that when such prices prevail even the fisherman in isolated communities can put to sea only when fish are extraordinarily abundant. Fish are brought in and sold to salteries only during the fall pollock run, the spring cod run, or when hake visit inshore grounds in the summer. And this occurs in Maine, with one exception, in places where there is no other way of disposing of the surplus fish. The salting firms at Eastport, Prospect Harbor, Swan's Island, and Vinal Haven remain in operation only because they can buy fish in those more or less

isolated communities at ridiculously low prices during certain periods of the year. Even considering the low costs of fish buying, proprietors of these stands say that they must pay close attention to other expenses to make any profit on their ventures. Fish salting in itself is not providing any large incomes to Maine fish buyers and even considering the effects of the present war, it is not likely to be very lucrative in the future. As an outlet for fishermen's catches of groundfish one can calculate that at best it will hold its own, but further decline is probable. Maine itself, although it has its tradition for salt fish consumption, is no better a market than the rest of the country. Now that fresh or frozen fish can be provided cheaply and easily, salt fish is in demand only as a novelty, or in areas with very low purchasing power. Ninety percent of the Maine groundfish catch is sold fresh or frozen.

B. THE FRESH AND FROZEN TRADE IN FINNY FISH.

15,299,000 pounds[8] of the groundfish and species related in trade caught in Maine in 1939 reached the consumer (or the retailer at least) as fresh fish. Maine itself was by far the largest

8. This figure and all those immediately following, like other statistics in this report are in equivalent fresh gutted weight. Figures given by dealers on the disposal of their products all have been converted, for the sake of consistency, to the fresh-gutted weights. The following conversion factors were used: Fillets: redfish, multiplied by 4; haddock x 2.3; cod, hake and cusk, x 2.6; pollock, x 1.8; flounders, x 3; mackerel, x 2; fish sticks, x 1.3.

consumer of Maine-caught fish during that year, as it probably is in all other years. About 11,329,000 pounds went to Maine alone, while 13,630,000 were consumed in the Maine marketing area (including northern New Hampshire and northern Vermont). Slightly less than four million pounds were sent outside the Maine marketing area as fresh fish----1,650,000 to Boston and southern New England, and 2,335,000 to the New York - Philadelphia area. Quite clearly Maine must depend on its limited area in northern New England for fresh fish sales. Maine shippers are able to sell inshore large cod on the New York and Philadelphia markets (1,100,000 pounds, roughly), and they shipped around 350,000 pounds of flounders to southern New England and New York markets, but otherwise Boston or New York are "dumping grounds" for fish that must be sold at sacrifice. No Maine port, at its greater distance from the consumer, can compete with Boston or other southern New England ports in supplying fresh fish in Massachusetts or any state south of it. If Maine had different species of fish to sell in these markets, the story might be otherwise, but it has no finny fish that cannot be supplied just as well or better from more favorably located ports. Fish sent from Portland, the nearest port to the "outside" at the cheapest possible transportation rate must add about .2 of a cent per pound (or subtract it from what the fisherman receives) to start on an even footing with fish from Boston. Although this reduction in itself would not eliminate the Maine fish producer from the southern

New England or the national market, it represents the best that Maine can do in a highly competitive foeld. And the farther east from Portland one goes the more one must subtract from the fisherman's receipts to pay for transportation, (Table 2) the longer fish is on the road, and the staler it is on the consumer's table. Those 4,000,000 pounds of groundfish will very likely remain a maximum contribution of Maine fisheries to the outside fresh trade. Proprietors of Maine fisheries industries can turn their attention much more advantageously to the cultivation of the fresh fish trade in the Maine marketing areas which, in spite of the 18,000,000 pounds consumed there, still offers possibilities.

The per capita consumption of fish in the Maine marketing area in 1939 was approximately____ pounds per capita, an amount very near the per capita consumption of fish for the whole country. If we consider in our estimates the 1,000,000 tourists who visit this region every year, and spend an average two weeks there, the per capita figure becomes surprisingly low for an area for the most part within 100 miles of the sea, and having a low average annual income. In normal years inhabitants of Great Britain, comparable to the Maine area in size, remoteness from meat supply, per capita income, and nearness to fishing grounds, each consume_____ pounds of fish annually. Although groundfish alone does not form the basis of this estimate of per capita consumption of seafood, it contributes 9/10 of the Maine seafood supply, and is the only element which offers promise of extensive expansion.

TABLE 2.—Rates on the shipment of fresh fish by motor truck from Portland and other fishing ports to selected towns in Maine - 1940[1]

(Rates in cents per hundred pounds; 25 percent of net weight of fish added for carriage of ice in which it is packed)

To: \ From:	Portland	Boothbay Harbor	Rockland	Stonington	Southwest Harbor	Eastport
Central Maine						
Augusta	32	57	56	77	. . . . .	87
Dover	74	. . . .	82	. . . . .	67	82
Farmington	37	67	. . . . .	. . . . .	. . . . .	. . . . .
Lewiston	30	51	61	. . . . .	. . . . .	. . . . .
Waterville	37	64	. . . . .	74	67	. . . . .
Bangor	57	77	60	65	60	. . . . .
Aroostook County						
Caribou	134	. . . .	132	. . . . .	. . . . .	132
Houlton	119	. . . .	119	125	103	115
Millinocket	93	. . . .	92	106	75	92

1/ Sources: "Class and Commodity Rate Tariff"

Commercial Motor Vehicle Association of Maine

Portland, 1935, 216 pp.

"National Motor Freight Classification No. 4"

American Trucking Association

Washington, 1934

Note: New Harbor and Port Clyde had no regular service. Prospect Harbor, Cutler, Jonesport rates similar to those for Southwest Harbor.

In the opinion of a majority of dealers, and of the investigator, several factors contribute toward the comparatively low per capita consumption in the marketing area. 1) Prejudice for and against certain fishes; 2) the consuming public's ignorance of seasonal fish supplies; 3) undependability of supply from Maine ports; and 4) inefficient methods of distribution all play a part.

1. Prejudice Against Certain Species.

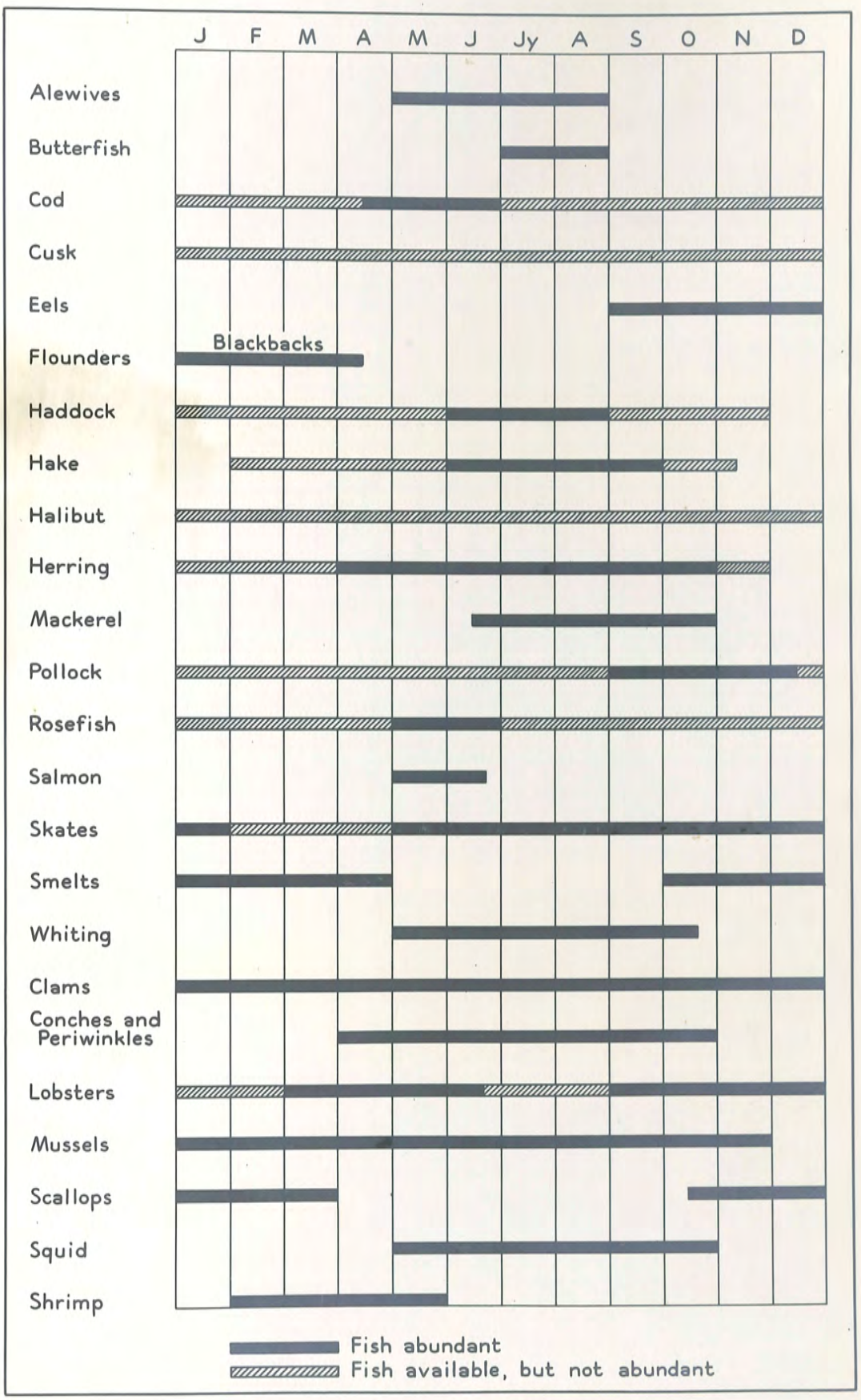
An important example of the prejudice for and against certain fishes is shown in the consumer's preference for fresh haddock as compared to fresh cod. Haddock not only brings a higher price on the Maine market, but it has a much greater sale than cod, a more abundant fish on Maine inshore grounds. Haddock may be considered a slightly better-flavored fish, but only so slightly that the present differences in price and consumption between the two fishes are quite unwarranted. The prejudice against cod is said to arise from the fact that the flesh of inshore cod very frequently contains a visible yellow parasitic worm.

2. Ignorance of Seasonal Fish Supplies.

Lack of adaptability to local fish seasons is shown in several ways, but one example will suffice. Mackerel are imported into Maine from the time fishermen seine the first schools off Cape May (N. J.) in spring. But during the local season retailers in most towns in Maine increase their market sales very little, and fishermen all but give away their fish in a glutted market.

The flesh of haddock contains a similar worm, but it does not bother the consumer because it is white, and comparatively invisible. Both parasites are considered harmless in the cooked flesh, but even that opinion has not dispelled the prejudice.*

Figure 11. The more common species of fish caught in Maine, and approximate periods during which they are landed.


J F M A M J Jy A S O N D
Alewives
Butterfish
Cod
Cusk
Eels
Flounders
Blackbacks
Haddock
Hake
Halibut
Herring
Mackerel
Pollock
Rosefish
Salmon
Skates
Smelts
Whiting
Clams
Conches and Periwinkles
Lobsters
Mussels
Scallops
Squid
Shrimp
Fish abundant
Fish available, but not abundant

These first two factors, although their present importance must not be minimized, can be easily remedied by a program of public education, once other problems have been solved, Making the consumer aware of what to look for in fish----what good quality consists of, what is "in", and what forms a "good buy", could bring increased fish sales, and at the same time provide the fisherman with a somewhat higher price. An examination of some of the progressive sales literature of some of the large fish wholesalers in Massachusetts might afford useful suggestions in this respect.

3. Undependability of Supply.

The last two factors listed, undependability of supply, and inefficiency of distribution, are more serious, and more difficult to criticize constructively.

All New England fisheries in a sense are seasonal----fish school and appear on certain grounds at certain times of the year, are caught, or disappear. Some other species may take the place of the first migrant, or, as is often true in winter, a given ground may produce nothing at all for a long period. Maine grounds, no less than any other, have their fruitful and barren seasons. Summer is on the whole a season when fish are comparatively abundant on most grounds frequented by Maine fishermen. With the approach of winter, however, all fish move offshore---often beyond the range of the small-boat fishery. Even the few fish remaining on the grounds, however, often are not to be caught

because of stormy weather. Weeks at a time bring weather totally unsuited to fishing of any kind. Local dealers soon use up their supply, and there are no fish to be had along the Maine shore. Fishless periods, due to fog or heavy weather, are not unknown even the summer half year. Consumers naturally do not come to depend on fish as a regular item on their menus when the supply is certain to be lacking at times. The "fish habit" is annually broken, as far as the supply of Maine fish is concerned.

The seasonal or periodic lack of fresh fish is takem care of in two ways----consumption of preserved fish, which now means principally frozen fish, and importation of fresh fish from other regions. The most satisfactory method from the point of view of fishermen's welfare, is the use of frozen fish, for in this way the local fisherman is able to augment his summer catches, while the freezer acts as a stabilizing factor on prices. The difference between the low prices of summer and the high prices of winter has been notably lessened in the large ports, where freezers compete in the fresh markets for fish.

To a certain extent Maine uses freezers, but their importance in the Maine marketing area is slight for two reasons: 1) there are only three fish freezers in Maine, only one of these having capacity;[10] and there seems to be consumer preference for fresh fish imported from Boston and other ports when local fish is not available. Whether this latter reason would hold true if local groundfish were frozen, and retailed in Maine markets during the winter

10. See pages for a further discussion of fish freezing in Maine.

is of course problematical, but frozen inshore fish ought to compare favorably in quality with "fresh" fish from the banks, now the principal winter supply.

Inefficiency in fish distribution in Maine serves to emphasize the interruptions due to difficulties on the fishing grounds, rather than to minimize them. Local deficits or surpluses along the coast are ironed out by shipment to or from Boston or Portland, rather than through contact with the nearest port. In part this is due to the fact that deficits or surpluses are not always of a local character, but there are situations in which a more co-operative system of fish marketing would operate advantageously.[11]

4. Distributional Inefficiencies.

Inefficiency in distribution, however, operates most destructively in the system of fish transportation which prevails. The customary method of retailing fish in a great part of Maine is fish peddling. There are about 120 men who peddle fish the year round in the Maine marketing area and an additional 110 to 130 who peddle in the summer months only. Fish peddlers are to be found on almost every road in Maine, with almost every conceivable kind of vehicle. Some have modern trucks with insulated compartments, but the greater part depend on worn passenger cars of another day, converted to spend their old age as light trucks.

As nearly as can be estimated, about 4,800,000 pounds of fish[12]

11. This, too, is discussed more fully in a later section.

12. Converted to fresh-gutted weight.

Figures 12, 13, and 14. Vehicles used in the transportation of Maine fish. Above, peddlers "convertibles;"center, light truck at the Portland Pier with a load of fish from a small port; below, where there is a well developed local market, as in the Mt. Desert region, better equipment is bought and used.

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SEA FOODS
BAR HARBOR
SEA PRODUCTS
X7866

were sold through peddlers in the Maine marketing area in 1939. This amount is about a fourth of the fish sold in Maine, and certainly enough to have a definite favorable or detrimental effect on the consuming market. Offhand, one is inclined to say that peddling is a good thing for the fishing industry, because peddlers cover rural areas where fish might not otherwise be sold. That is true, but looking at them critically, one is forced to conclude that they cover it in far from the best manner. The chief waste at present is in the distance which many of them travel between the places where they buy their fish and the places where they sell it. A trip of 150 miles (75 miles each way) once or twice each week to obtain fish is common among the peddlers, and some travel up to 250 miles. There is nothing extraordinary about the shipment of fish those distances, but each peddler takes with him only a small amount of fish----usually 200 to 300 pounds (of dressed fish) and sometimes even less. A good week's sale for the average itinerant seller is around 500 pounds. If he travels 150 miles before he commences his route he must add about 1.2 cents to the price of every pound of fish for transportation costs alone[13]----that is before he commences his peddling. In addition he covers a hundred or more miles while he peddles, but that he must do in any circumstance, so it does not enter criticism. Probably 1,500,000 pounds of dressed fish (2,800,000 gutted weight) are brought to

13. The peddler's truck on an average costs about 4 cents per mile to run. New trucks (of which there are few) have a high rate of depreciation, the old a high rate of gasoline and oil consumption, as well as increased expenses for repair. As run in Maine the expenses of operation are nearly the same for old and new.

Maine consumers with these high transportation costs. The farther the peddler travels, the more disproportionate the expense of carting this part of the Maine consumer's fish supply becomes. If some means couls be found of getting the fish to the peddlers without their making a weekly or semi-weekly excursion to the port or ports where they get their fish, the rural consumer would be saved approximately a cent a pound on what he eats.

There are other ways in which one can question the benefit of the peddler to the Maine fishing industry. Because of the distance which he travels, it often is in poor condition by the time it arrives at the buyer's door, The flesh is often crushed from the continued bouncing about which the wagon takes it through, and peddlers too often succumb to the understandable temptation of keeping all their fish until it has been sold.[14] Poor fish from peddlers' wagons has undoubtedly discouraged inland sales to some extent, as have the relatively high prices which peddlers frequently are forced to charge to give themselves a subsistence income. Instances of a ten-cent mark-up on peddlers' fish, nearly twice the wholesaler's price, are on record, and none of them can make a living on anything less than a six-cent

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14. This charge is made both by wholesalers and consumers who were interviewed. The same criticism has been made of fish peddling in city markets. See L.T.Hopkinson,"Trade in Fresh and Frozen Fishery Products and Related Marketing Considerations in Boston,Massachusetts," U. S. Bureau of Fisheries, Appen.XVI to Report of the Commission for 1922,Washington,1923

mark-up.[15] An agreement on routes to be followed, by eliminating the overlapping which now occurs in many places, might increase the fish sales per mile of travel, consequently reduce the necessary mark-up, and finally reduce the price to the consumer. Agreements of this sort, however, without some means of enforcing adherence, are hardly to be expected. Little therefore can be expected from such an arrangement in the near future. To add to the difficulty the composition of the peddlers' group is constantly changing. Not being a generally profirable undertaking, men engage in it one year, only to drop it the next, when some other hopeful unemployed person moves in to take his place in the trade. Probably a fourth of the peddlers in Maine have been selling fish less than two years. Agreements in such a group are nearly out of the question.

Peddlers on the whole cannot be criticized on another point which amounts to a failing of the other method of distribution in Maine. They almost always buy their fish from the nearest fishing port. Peddlers covering Aroostook County, for example,

15. A full-time peddler sells on the average about 500 pounds of fish a week during the summer six months(if he does well). In covering his route (250 miles on an average) his expenses would be $10.00 a week or $240.00 for the summer. If $20.00 a week is arbitrarily set as his wage for the summer, he must gross $480.00 more, or a total of $720.00 on his fish. Not considering losses from shrinkage and spoilage, he must mark up the 12,000 pound of fish he sells 6 cents per pound. This, it must be noted, is only for the summer six months. During the winter months he can expect to sell only about 4,800 pounds. To make even $10.00 a week as his wage he must mark up fish 10 cents per pound. Peddlers thus do not grow rich on their trade, in spite of the 100 percent mark-up, and many prefer to spend the winter doing something else, rather than peddle for the little they make at this season.

buy their fish at Eastport; those selling in Hancock County at Southwest Harbor, while Rockland, Boothbay Harbor and Portland share the trade of peddlers operating in central Maine.

Retail stores and fish markets on the other hand, who receive their fish through the public carriers,buy seemingly in the most haphazard fashion imaginable. Waterville, Maine,stores, for exanple, buy over two-thirds of the fish they sell from Portland and Boston, although Waterville is 16 miles nearer Rockland than Portland, and 28 miles nearer Boothbay Harbor. Bangor, 60 miles from Rockland, and 50 from Southwest Harbor, buys more fish from Portland,(125 miles), Boston,(230 miles) or Eastport,(115 miles) than from either of the nearby ports. Perhaps the most astonishing example of all is that stores in Rockland----some of them within a few blocks of a fish wholesaler, buy nine-tenths of their fish from Portland and Boston---principally from Boston. Even the sparsely populated Aroostook country, more than twice as far from Portland as from Eastport, and four times as far from Boston, receives nearly half the fish sold in stores from the two cities. There are other anomalies equally interesting. Camden, a prosperous little summer town just north of Rockland, sells more Eastport fish than Rockland fish, and more Boston fish than fish from either of the first two ports. At first sight the criss-crossing of fish shipments is puzzling from many points of view. This is especially true for the far-reaching sales of Boston, which are annually about 7,000,000 pounds in the Maine area. Logically, one would expect fish to

Figure 15. Maine fish market. The selection offered is typical.

QUALITY
MARKET
HALIBUT
MACKEREL
Cod STEAK
Corned Hake
Fresh Hake
TUNA Fish
FLOUNDERS
BLUE Fish
FISH STICKS

be bought in the nearest port, for consumers conceivably could gain not only in savings on the cost of transportation, but also in the quality of fish which they bought. Boston fish, composed for the most part of landings from the banks are not to be compared in quality, according to local fish handlers, with the day-old fish that might be available from Maine small ports.

To a certain extent this situation may be the result of individual idiosyncracies on the part of market-keepers, who prefer to deal where they can buy regularly with the least trouble, other things being equal. But other well grounded reasons are more important in acccounting for this curious phase of the trade. This problem is twofold. One first must explain why Portland dominates the Maine marketing area, then account for the invasion of the astonishingly large quantity of Boston fish.

Of the 13,630,000 pounds of fish sold by Maine fish wholesalers in the Maine marketing area, in 1939 Portland sold about 8,025,000 pounds, or 58 percent. This included 1,550,000 pounds shipped from Boston to Portland for redistribution through Portland wholesalers. Portland was the only Maine port selling fish in quantity to northern New Hampshire and Vermont; it was the only Maine port selling fish within a thirty miles radius from that city; and it sold fish to practically every town of any size in Maine, coastal or interior.

At the outset, one may minimize any apparent advantages Portland may have in its relation to the water. As far as fishing boats are concerned Portland's harbor is no better than that of

Figure 16. The Fish Pier, Portland. Although facilities here far outclass those of small ports, they are poor compared to Boston or Gloucester, Mass.

Figures 17 and 18. Typical small port facilities on the Maine coast. Above, Port Clyde; below, New Harbor.

many smaller Maine ports; and its relation to the fishing grounds is no better----if anything it is farther from some of the good grounds than Boothbay Harbor, New Harbor, or Rockland. Portland's position is instead due to its relationships with its hinterland (tributary area).

In part Portland's preponderance in the trade is due to the fact that it is the logical port for distribution to the most populous part of the marketing area. Portland itself is the largest city of the region; it has several large towns within its hinterland; and is much nearer to New Hampshire and Vermont than any other Maine port where fish is landed in quantity. But this does not account for sales by Portland firms in the territory which best could be served by wholesalers in ports farther eastward.

Portland owes its preeminence primarily to the vagaries of the system of public transportation in Maine. The truth is that Portland is in contact with all Maine; the other fishing ports, at least as far as public carriers are concerned, are quite isolated. All the transportation lines center in Portland; service from it is superior to that of any other port; and transportation rates favor it. The small ports, with the exception of Rockland, are all twenty to fifty miles from a railroad, hence hopelessly out of touch with express service. Rockland's only rail connection is with Portland. Central Maine market-keepers wanting fish in a hurry therefore turn to Portland, and not to the little place thirty miles out on the end of a promontory, or

PAGE 28 IS MISSING

even to Rockland. They place their orders with the wholesaler who will deliver it on the next train.

Comparatively little fish, however, now is shipped by rail. Three fourths of the fish distributed from all Maine ports, not including the peddlers' sale, is sent out by motor truck. Since the motor truck is able to go wherever there are roads, one naturally would think that this would operate to the advantage of the small ports, and against the centralizing tendency observed for the railroads. But Portland again is favored, as a comparison of shipping rates for some representative Maine towns readily shows. Even into Aroostook County, which is from 80 to 100 miles closer to Rockland, Southwest Harbor and Eastport, Portland has nearly equal rates. The disparity between Portland's and other ports' rates for central Maine towns is in part due to the fact that fish can be shipped from Portland on "commodity" rates, whereas fish from other ports must operate under the higher "class" rates. (See Table 2) Commodity rates are awarded wherever there is sufficient volume of any one commodity to warrant them. The small ports, with their small volumes of fish, are thus further handicapped.

Another reason for Portland's position in the industry is also a cumulative advantage, connected with its larger trade. The convenience of being able to obtain in Portland any reasonable sort of sea-food order is often a compelling factor for the retail buyer in placing his trade. A retailer has assurance that he can get what he wishes when he wants it, without the difficulty

TABLE 2.—Rates on the shipment of fresh fish by motor truck from Portland and other fishing ports to selected towns in Maine - 1940[1/]

(Rates in cents per hundred pounds; 25 percent of net weight of fish added for carriage of ice in which it is packed)

To: \ From:	Portland	Boothbay Harbor	Rockland	Stonington	Southwest Harbor	Eastport
Central Maine						
Augusta	32	57	56	77	. . . . .	87
Dover	74	. . . . .	82	. . . . .	67	82
Farmington	37	67	. . . . .	. . . . .	. . . . .	. . . . .
Lewiston	30	51	61	. . . . .	. . . . .	. . . . .
Waterville	37	64	. . . . .	74	67	. . . . .
Bangor	57	77	60	65	60	. . . . .
Aroostook County						
Caribou	134	. . . . .	132	. . . . .	. . . . .	132
Houlton	119	. . . . .	119	125	103	115
Millinocket	93	. . . . .	92	106	75	92

1/ Sources: "Class and Commodity Rate Tariff"
Commercial Motor Vehicle Association of Maine
Portland, 1935, 216 pp.
"National Motor Freight Classification No. 4"
American Trucking Association
Washington, 1934

Note: New Harbor and Port Clyde had no regular service. Prospect Harbor, Cutler, Jonesport rates similar to those for Southwest Harbor.

of "shopping around". As a steady customer, furthermore, he is likely to receive more favored treatment than if he were an occasional one.

If this factor is influential in Portland's position it operates even more strongly for the large importations from Boston, for the Portland merchant in spite of the fact that he receives landings from the banks, is sometimes faced with a dearth of certain kinds of fish. The Boston dealer rarely is.

On other grounds it is not so easy to account for the fish shipped into Maine from Boston, which in 1939 amounted to over 7 1/4 million pounds. Boston is second only to Portland in supplying fish to the Maine marketing area. Part of the Boston shipments are in response to what might be termed a "luxury" demand---that is, of fish which are unobtainable, or obtainable only in small quantities in Maine. Salmon, halibut, and swordfish at all seasons are high priced fish distributed through Boston, with either a very small or no local supply. For the time being there can be no hope of replacing this part of Boston supplied fish by Maine production. About nine percent, or 715,000 pounds of the total imports from Boston, are salmon, about 13 percent halibut, and about three percent swordfish. If restoration of salmon in Maine streams can be effected,[16] the state certainly will be able to provide itself with salmon, but that is a matter for the distant future. Meanwhile, since most of the salmon is now sent from the Pacific Coast, Maine will get its supply from Boston, where carload shipments are broken for New England.

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16. See page

Halibut and swordfish, which are landed in only small quantities in New England, and over the supply of which Maine can exercise little control, must also continue to be imported from outside.

A second part of the imports from Boston is composed of species supplied by Maine fisheries, but deficient at some seasons. Mackerel and haddock account for four-fifths of this group; mackerel being imported principally in spring and early summer, and haddock in winter. It is hard to see how any replacement of mackerel imports (960,000 pounds,13 percent) can be made locally, since Maine mackerel do not appear until July. Education of consumers to awareness of local fish seasons may help, but if the public wishes mackerel in May or early June, the only way of getting it is by importation.

There is somewhat less justification for the importation of winter haddock, the largest item in the group.(1,522,000 pounds) While it is true that little haddock is landed in Maine during the winter, this importation might be supplanted by freezing Maine haddock during the spring and summer, and retailing it during the off-season.[17] One Maine firm already has undertaken this type of distribution, with some success.

A problem that cannot be answered satisfactorily relates to the large importation of haddock and other groundfish at the time of year when Maine is able to supply its area. Over two million pounds of haddock, and three-quarters of a million

17. Provided, of course freezing equipment could be used efficiently enough to make processing costs low. See page

pounds of other fish, were sent from Boston to the Maine marketing area at times when Maine ports offered the best supply. The most commonly held opinion ascribes this condition to the existence of chain stores, which, with their well-developed buying organizations, their independent trucking services, and tendency to buy where they can get the goods cheapest, patronize Boston fish merchants, rather than those in Maine. Actually, however, chain stores account for very little of the total importation of this sort. Less than 3 percent of the importations of this type made in 1939 were made by chain organizations. Chain stores help to concentrate buying in Portland, it is true, but as a rule, what Maine can furnish and they need, they buy in Maine. In this respect, at least, it appears that the chain stores are maligned, for independent markets buy far more outside than the chains do.

Some locally-owned markets buy nearly all of their fish in Boston. They account for a large part of the importations of this group. The justification for the practice most frequently made is that Boston fish are cheaper. For two or three small buyers, who have fish as a side-line in a general market, and who maintain their own trucks for transportation of goods from Boston, fish actually are cheaper when purchased in Boston. For the remainder, who depend on public transportation, however, the statement is false. Portland, and for that matter, all Maine, fish prices follow the Boston prices very closely. If anything they tend to be lower by the shipping differential between Boston and the port where the Maine wholesaler is located. The buying policies of chain organizations, who have less occasion for local

patriotism than the independent merchant is proof enough that Maine fish are never higher priced than Boston fish for an extended period.

A more cogent reason for these importations from Boston is the convenience attached to dealing with a Boston firm, in spite of its distance----a reason cited previously for Portland's domination of the Maine trade. The small dealer may obtain any amount of any kind of fish at almost any season he wishes it. Grouping orders, rather than scattered buying, is often defended by the small merchant or hotel keeper as time-saving, and not to be measured by the difference in first prices. Apparently only better local service can overcome this preference.

C. THE LOBSTER TRADE.

From the point of view of total value and its importance to every small fisherman who is able to equip himself with the necessary gear, lobster fishing is one of the major fields of interest in the Maine fishery.(Table) Although the loadings of several other species of fish and shellfish exceed those of lobsters, it continues year after year as the most valuable income producing item for the Maine fisherman. It is especially important in this survey because the ratio of fishing effort to the number of pounds caught is very high. The inshore fisherman is the only person who can provide this prized article, whose demand has shown no signs of diminution in the whole history of exploitation.

Maine, in spite of its present small production compared

Figures 19 and 20. Maine lobster fishing craft - in a typical harbor; and on the the grounds.

with a few decades ago, is still the most important American source of lobsters. It is the only article in the fishery certain of an export market (i.e. exported from the Maine marketing area) larger than the home market. There is no problem about external markets like that for fresh groundfish.

Maine produced in 1939, counting lobsters which were sold by fishermen directly to the consumer, and those handled by wholesalers, about 7,367,300 pounds of lobster. An additional 1,382,400 pounds were imported from Canada by Maine dealers, and distributed from Maine. The total supply handled by Maine therefore was 8,729,700 pounds in 1939, approximately what it has been each year for the last ten years (ten year average) The value of the 1939 supply was roughly $1,250,000, more than twice the value of the next species on the Departments of Sea and Shore Fisheries list of landings.

The present organization of the commercial lobster trade resembles other phases of the Maine fishery, but has some features peculiar to itself. Compared to other fisheries, lobstering has had only one fundamental change in method since it was first known. The introduction of power boats increased the range of the individual fisherman; it increased the number of pots he could fish; and reduced his dependence on weather somewhat. However, the principle of fishing remains the same----as it was a hundred years ago--it is a one-man job, to be undertaken from a small boat, which never ranges many miles from shore or port. Collection from fishermen hence must be made in many spots along the coast,

and the lobster has to be handled by three or four concerns before it eventually reaches the consumer. In almost every small port in Maine where lobsters are handled there is at least one buyer who takes lobsters as they come, stores them temporarily, but pays the fisherman for his catch as he brings them in. Often, too, the buyer is the local merchant for fishing gear, boat materials, and gasoline----extending credit, and equipping fishermen. The buyer in a small port may sell some of his lobsters locally, especially if there is a summer hotel or summer colony in the neighborhood, and he may ship a few to retailers in interior Maine towns where he has arrangements. Usually, however, the bulk of his purchases are made for other dealers who have built up sufficient volume of trade to cater to retailers elsewhere in New England, and even outside the region. These larger dealers operate from several centers in New England, but probably nine-tenths of all final shipments are made from the Boston region (including Bay View) in Massachusetts; Portland, and Rockland, in Maine. (Table 3) The rather surprising concentration of lobster wholesaling in the hands of a few dealers at Portland, Rockland, and Boston has been brought about by several factors. The distribution of lobsters over great distances is a specialized and exacting trade, requiring considerable capital as well as speedy transportation. The whole is dependent on the fact that this shellfish must be sold alive to the consumer, and on the concentration of landings in a few months of the year. Lobsters not only must be bought and collected from the fishermen and buyers, but they must be stored

TABLE 3.—Distribution of lobsters from wholesale outlets in Maine, 1939
(pounds)

From \ To	Maine retail 5/	Boston retail	Boston wholesale	New York all	Midwest retail	Elsewhere retail
Rockland	270,000	239,000	50,000	637,000	952,000	33,000
Portland	510,000	305,000	60,000	1,000,000	380,000	102,400
Washington County 1/	113,300	. . . .	192,000	60,000	. . . .	. . . .
Mt. Desert region 2/	448,500	55,000	1,784,000	215,000	250,000	20,000
Central Maine coast 3/	277,500	75,000	368,000	50,000	250,000	. . . .
Southern Maine shore 4/	128,000	. . . .	125,000	. . . .	. . . .	. . . .
Total	1,737,300	729,000	2,624,000	1,942,000	1,832,000	155,400
Grand total	. . . . . 8,729,700					

1/ Eastport, Lubec, Jonesport, Addison, and Millbridge.

2/ Dealers at Prospect Harbor, Winter Harbor, Stonington, Southwest Harbor, Hancock, Manset, McKinley-Bernard, and Vinal Haven.

3/ Dealers at Port Clyde, New Harbor, Boothbay Harbor, Cundys Harbor, and Southport.

4/ Dealers at Cape Porpoise, York, and Kittery.

5/ Includes local sale by fishermen direct to consumer—estimated at 215,000 pounds for all Maine.

Attention of the reader is directed to the fact that these figures do not in any way represent actual catches in the given districts. Individual dealers may and do buy lobsters anywhere on the Maine coast and in Canada. Only statistics on the distribution of lobsters from the given districts are presented here.

under the proper conditions and fed for months at a time in order to provide a supply at all times of the year. To do this effectively a dealer needs a pound (rented or constructed) his own smack or truck (or both), and provisions for temporary storage for lobsters awaiting immediate shipment. All this demands some capital, and consequent large turn-over to make even a modestly paying business. A minimum annual business for any wholesaler specializing in lobsters appears to be around 300,000 pounds annually, but only two or three handle less than 500,000. Apparently within the present trade the larger the business the more profitable the undertaking. Lobster wholesaling thus has become concentrated in a few hands. Five firms handle sixty percent of the lobsters distributed from Maine ports, and if New England as a whole is considered, six firms, including four from Maine, handle 80 percent of all that are distributed from New England. One company alone handles over half of all the fresh lobsters that get into trade. This concentration of wholesaling is sharply contrasted to the decentralization of the production, a situation which operates definitely to the disadvantage of the fisherman. Because he cannot efficiently store his catch for any length of time, he must accept whatever price is offered him when he brings it in. When lobsters are being caught in quantity they must always be sold on a buyer's market, easily controlled by the dominating firms.

Like nearly all other phases of the fish trade in Maine the lobster trade cannot be considered without mention of Boston, where

Figures 21, 22, and 23. Maine lobster wholesale dealers establishments. Above, at Stonington; center, building and equipment of a dealer's commission man in an isolated port. Below, the Rockland waterfront.

Esso
LA CORTESI

SEA

the wholesalers annually import from Canada and Newfoundland more lobsters than the entire state of Maine produces. Although Maine lobster dealers do not follow the Boston market quite as closely as the finny fish dealers, they cannot disregard it.

Either because they are willing to accept less for their work, or because their fishing grounds require less fishing effort per pound of lobsters, Canadian and Newfoundland fishermen, during their seasons, can undersell the Maine fisherman in the American market. In the absence of any duty on Canadian lobsters the Maine lobsterman scarcely has been able to keep himself in gear at the prevailing prices. In the face of this, Maine production, although it has not declined, has also not increased.[18]

The recent increase in lobster consumption has all been supplied from foreign sources - and the Boston region, as a more convenient port of entry, has become the center of the lobster , as well as of the groundfish trade.

It may seem strange that Maine, which dominated the lobster market so long that every restaurant lobster in the country is a "Maine" lobster, should lose out so quickly. Why has it not taken over the Canadian exports of lobsters and distributed them itself? To a certain extent it does, as statistics show. A few dealers handle the Canadian product primarily, but these lobsters cost just as much landed in Maine as they do landed in Boston. However, for distribution to any other part of the country shipment by

18. Conservation efforts also have had an effect on production.

railway express from Portland or Rockland is respectively about 15 cents and $1.40 more expensive per hundred pounds than Boston.[19] The Canadian lobsters thus are distributed from the Gloucester - Boston area and Maine can scarcely expect an increase in rehandled lobsters to bolster her present ailing lobster trade.

That Canadian lobsters distributed through Gloucester and Boston offer serious competition to Maine can be seen in the table presented above (Table 3), and on the graph, Figure . Three-fourths of the lobsters caught in Maine are distributed outside Maine----or in places where they must compete with the Canadian product.[20] No complaint can be made as to the size of the market outside Maine----it is only Maine's share in the trade that need be worried about. If Maine waters held a stock of lobsters large enough to enable consistently cheaper production than now, Maine dealers could easily market twice their present amounts of lobster. With more than 8,000,000 pounds of foreign[21] lobsters entering to supply the domestic demand, the problem is not one of finding a market for lobsters but of being able to produce Maine lobsters cheaply enough to meet foreign competition.

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19. Nearly all lobsters, except for distinctly local distribution, are shipped by rail because they require fast handling and a minimum of jolting. Sample rate for 100 lbs. of live lobsters, packed for shipment: Boston - New York, $3.26; Portland - New York, $3.40; Rockland - New York, $4.67.

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20. South African frozen crawfish tails also figure in this competition, as does West Indian crawfish, but only to a minor extent compared to Canadian lobsters. The price of lobsters (Fig.) corresponds very closely to the amount imported from Canada.

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21. 13,000,000 pounds were imported in 1940.

Within Maine itself there also is room for expansion. Except in Aroostook County and the eastern part of Washington County, where New Brunswick lobsters are regularly trucked in, the Maine marketing area is supplied almost entirely by Maine dealers. Here a million and three-fourths pounds of Maine lobsters are consumed annually. This amount, although large, is still small when one considers the character of the market. Over 800,000 people are permanent residents in Maine, and an estimated million summer visitors enter the state every year,[22] to spend at least a few each there. Taking summer residents and Maine inhabitants together, the annual per capita consumption of lobster in Maine was less than one pound----only one chicken lobster. Since the retail price of lobsters locally is often under 25 cents less than the price of good beef for an extended period during late spring, summer and autumn, Maine people themselves should consume more than the million and three-quarters pounds marketed in the state and neighboring territory. The idea that lobster is a luxury food seems to be too firmly impressed on the consumer's mind.

The tourists who enter Maine also ought to consume more than the present total sale. Part of the attraction of a Maine vacation for many is the prospect of eating fresh seafoods----lobster above all. The vacationer is always a possible customer for the lobster industry. The average summer hotel, seeking to provide as much "local color" as possible, does quite well in this respect. Lobster appears on almost every Maine summer hotel menu at least once a week,

22. Estimate by E. F. Greaton, Executive Secretary of the Maine Development Commission, in a letter of October 8, 1940.

Figure 24. Where the proper atmosphere is provided, marketing seafoods to tourists has proven a profitable business.

LOBSTER SALAD
CLAM CHOWDER
SANDWICHES
COFFEE · CAKE
ANTIQUES
FUDGE

and where the hotel offers choice is very often a standing item. Some hotels buy as much as 6000 or 7000 pounds of lobster during a summer, and the average is about 1000 pounds. The diffuculty appears to be among those businesses catering to the transient trade, which provides a large part of the Maine tourist income. The average restaurant apparently imbued with the idea of "milking" the tourist, is certainly a deterrent to the lobster trade in Maine. Durring the summer of 1940, Maine restaurants in the coastal zone, (with some notable exceptions) all within a short distance of a lobster wholesaler who sold live lobsters at 18 to 20 cents a pound, charged from $1.25 to $2.50 for a lobster dinner composed of a select or chicken lobster and a few inexpensive garnishments. The absurdity of these prices was proven by the few establishments which offered the same meals at half the prevailing prices, and readily admitted making a fair profit. The typical tourist, no longer the gullible traveller he once was, is readily discouraged from eating lobsters by these prices.

Another practice which discourages prospective out-of-state lobster eaters is the present restaurant method of serving lobster. Generally the lobsters purchased for one day's sale are all cooked at one time, usually in the morning, when there is little else to do. Served cold at lunch or dinner they are all right, but the unwary person who orders a hot lobster gets warmed-over lobster, made tough and unpalatable in the process. Disappointed by what he receives, he may try a second time, but very likely he will not. The Maine lobster market suffers accordingly.

In all then there is room for Maine lobsters in any quantity if the marketing problem is approached in a progressive manner, and if the fishermen are able to produce them cheaply enough. Here there is much more hope than in the case of the groundfish industry, for compitition is on a more even footing. Expansion is wholly dependent upon the physical limitations on production, if an intelligent program of building up the fishery is followed. Maine is in a far better potential position to sell its lobsters on all the American markets than any of its major competitors, all of which are located at greater distances from the center of consumption than Maine. There is no effective competitor among American fishing areas, and only the maritime provinces, of all the foreign-lobster fisheries, has even a chance of competing with an efficient Maine fishery.

Unfortunately, however, Maine is still suffering from the effects of "mining" her marine resources. In 1880, the average annual catch of lobsters per pot was 147 pounds, the total catch 14,234,182 pounds; by 1889 this had increased to 196 pounds per pot, and a total of 25,001,351 pounds; but in 1939 in spite of efforts to stop decline of the lobster population along the coast the catch per pot was less than 40 pounds (39.7) As compared with 1889, the total annual catch of lobsters in Maine by 1937 had declined 70 percent, the annual catch per pot had declined 80 percent, and the number of pots had increased 50 percent. Compared with the early days, the present fisherman is somewhat compensated for his present low catch and the amount of fishing effort he

expands by the increased prices, but the low catch is still the heart of the problem. If the catch per pot could be increased to twice its present amount the fisherman's cost of production would be lower, the market price might be somewhat lower, and his competitive position on the market improved measurably. The market for an increased catch of Maine lobsters exists, provided production is efficient enough, and a little attention is paid toward the cooperative cultivation of sales outlets.

From this point on only the biologist can offer effective aid. How can the present lobster population of the Maine coast be increased, and once it is raised to something near its former level, what is the maximum yearly catch that should be allowed? However, these problems do not promise to have ready and easy solutions, as past experiments indicate. Both the Maine Department of Sea and Shore Fisheries, and the Federal Fish and Wildlife Service would willingly devote more attention to the lobster problem, provided they were given the financial means to do so. In final analysis, therefore, the responsibility for the future of the lobster industry rests squarely with legislators, and the public they represent. If they supply the means, the inshore fisherman may justificably have a more optimistic outlook than he has.

D. OTHER SHELLFISH.

Compared to lobsters, fisheries for other shellfish contribute only a minor amount to the income of the Maine fishermen. In 1939, of the $2,899,303 total value of the sea products in Maine, more than 36 percent was accounted for by lobsters, but less than

8 percent by crabs, scallops, soft clams, quahaugs, and shrimp together. Of this 8 percent, fully 7 percent represented the value of soft clams, the other four shellfish adding not more than 1 percent to the total. Oysters, although a few experimental plantings exist in Casco Bay and in the Sheepscott River, contributed so little that they are not even listed in the Yearly Report of the Department.

As far as a program of fisheries development in Maine is concerned, two of this group deserve definite attention, two may be dismissed as very minor, and two have a questionable future.

The soft-shelled clam for many decades has been a much more important factor in the Maine fishery than statistics on its value might indicate. Not only has it steadily entered the commercial market in quantity, but it was for a long time valuable to the line-trawl and hand-line fishery as bait; and as the only resoure readily available to anyone without much fishing equipment it contributed a great deal to the maintenance of poor families living near the shore. The poor man's oyster is still looked upon as a resource for families in the lower income levels in many parts of Maine, but also is one of the few Maine fisheries products which support a preserving industry at the present time.

In 1939 4,979,415 pounds of clam meats were produced in Maine, of which approximately 3,650,000 pounds were converted into canned clams, clam bouillon, clam chowder, and clam stew at fourteen plants scattered along the Maine coast.[23] The remainder was for the

23. Plants located at Whiting, Jonesboro, Jonesport, W. Jonesport, Wyman, Millbridge, Columbia Falls, McKinley, Thomaston, E. Boothbay, Friendship, Portland (2), and Pine Point.

Table 4 Shellfish Other Than Lobsters Handled at Maine Ports, 1939

	Pounds	Dollars
Clams	4,979,415*	209,711.63*
Crabs	1,679,388.†	22,723.92
Scallops	394,965**	55,766.81**
Sea Eggs	54,417	260.09
Shrimp	19,864	845.18

* Does not include importations from Canada.

† Live weight.

** Includes scallops caught on George's Bank.

Retype this table with 3 carbons.

most part sold fresh, although a few were used as bait. In addition to the clams dug on Maine flats, about pounds were imported into Maine from New Brunswick and Nova Scotia, nearly all of which were used by the canneries. In all, therefore, Maine establishments handled pounds of clams, the greater part of which were marketed outside Maine and the Maine area in preserved form.

Only guesses as to the destination of the preserved products are available because the greater part is marketed through widely-separated jobbers, but probably three-quarters is consumed in the Mid-west and in the Northeast, (excepting New England). With the exception of clams shipped from Pine Point and Freeport to the Boston area, all the soft clams used fresh are consumed in the Maine marketing area either in sale through roadside stands, by peddlers, or by city markets. Except for two dealers in western Maine there is little concentration of the wholesale clam business, the usual method being sale to the retail market by the digger himself.

With a per capita consumption of pounds in the marketing area, there is probably little opportunity for expansion of the clam market in the Maine area, or in New England unless some new, attractive specialty product is developed. The same will hold true for the much more competitive national market, in which the Maine plants must compete with the canneries turning out Pacific razor clams, or southern quahaugs. However, if Maine canneries find it profitable to import pounds of clams annually ---a custom that has gone on for the last 10 years,

Figure 25. Clam cannery, East Machias, and a section of the extensive clam flats in this area.

(10 year average of importation of clams into Maine)
then certainly it will be profitable to increase the output of the clam flats in Maine, to eliminate the necessity for importation, if nothing else.

There are many depleted flats in Maine----especially in the eastern section, where immense tidal flats are producing only a fraction of what they once did. Not only overdigging, but the pollution of thousands of acres with sawdust refuse in another day have seriously reduced the yield. Although Maine flats produced nearly five million pounds in 1939, this was only sixty percent of the clam production of the flats at their peak(8,308,672 pounds, 1889). In western Maine, bacterial pollution in the vicinity of settled towns, and especially in Casco Bay, has made some of the flats unusable. There is thus unquestionably a large area of present unproductive flats which might well take the place of the New Brunswick flats in the production of clams for Maine canneries.

There is no need to elaborate on this phase of the fishery problem, because the Department of Sea and Shore Fisheries has already shown that it is aware of the possibilities in undertaking a clam planting program of its own, and in encouraging the NYA projects of clam planting on the eastern Maine flats. However, these efforts could profitably be prosecuted even more vigorously. Maine might also investigate the possibility of establishing a small chlorinating plant to make saleable the clams now multiplying in areas where digging is forbidden. An examination of the

experiences of the town of Newburyport, Mass. in the operation of its chlorinating plant (Plum Island) might be worth-while, and an experiment in issuing private leases on the order of the oyster industry in the Mid-Atlantic states might also be illuminating. By whatever means it uses, Maine could double its present clam production without having to worry about possible markets.

The one other species of shellfish which might reward some attention is the sea scallop. Principally through the efforts of one dealer, Maine received and distributed for a number of years past between 300,000 and 400,000 pounds of scallops annually. All but a few thousand pounds were scallops caught on Georges Bank, landed at Rockland, and shipped from there. Depanding on the enterprise of dealers, Rockland or another Maine port may continue to distribute Georges Bank scallops, but there is definitely an uncertain future for anyone who attempts to deal in the external market in Georges Bank scallops, because both Boston and New Bedford are nearer the scallop beds, and nearer the markets which demand the greater part of the catch.

Maine's opportunity in this line lies in the possibility of developing the inshore fishery for sea scallops. Any such undertaking will be quite experimental, for the Maine scallop fishery has been almost non-existent for many years. However, if an ecological survey of probable bottoms could be made by a competent biologist, the approximate volume of scallop production might be determined beforehand. Maine at one time produced over 250,000 pounds of scallop meats annually from inshore grounds (1890's, principally from beds in and adjoining Penobscot Bay), so, as far

as natural conditions are concerned, the fishery appears to be something more than a possibility. As in the case of lobsters there need be little worry about disposal of the product if abundance can be built up sufficiently to assure even the present cost of production. The few scallops brought in by spring fishermen in Penobscot and Blue Hill Bays are eagerly snapped up by local buyers. Few, if any of them are ever sold outside the Maine marketing area. The superiority of the fresh inshore scallops over the Georges Bank product is recognized well enough by the market to provide a small premium on bona-fide inshore meats. Hence there is every reason to believe that an increased inshore scallop production would not find market difficulties. However, the difficulties confronting the reconstruction of scalloping in Maine should not be minimized, since knowledge about the behaviour of this fishery is far from complete.

Crabs and shrimps are two quite large question marks in the list of Maine shallfish.

Western Maine coastal waters have been the site of a crab fishery, depanding on the fresh crab-meat trade, for about twenty-five years, and periodically fishing for crabs is stimulated in eastern Maine by the establishment of small factories canning crabs. The only opertatin cannery at present is located in Stonington, but previous experiments at E. Machias, Jonesport, and other places have been abandoned.[24] Apparently the much more productive crab fisheries of southern United States and Japan, and the cheaper wages paid in southern and Japanese factories,

24. Crab canning for 1941 is being planned at Rockland, Stonington, E. Machias
Fishing Gazette, v. (May 1941), p.

for the laborious process of picking out meats give the Maine canner a disadvantage he has not yet been able to overcome, in spite of the fact that he is working on a resource that has been exploited very little.

The sale of fresh crab-meat on the whole has been more successful than crab canning in Maine. A small, steady market in the more populated part of the state has been augmented in recent years by the sales made to several progressive stands featuring crab-meat lunches for tourists. Around 500,000 pounds annually are caught and thus disposed of in Cumberland County. It is doubtful if this can be increased, or even maintained at its present level, for fishermen already complain of a scarcity of crabs in the Casco Bay area. Dealers who depended entirely on the Casco Bay catch at one time, now obtain part of their supply from Knox County, which is now having its turn at fishing out crabs. The problem of the crab fishery thus is two-fold; western Maine must look toward some measures for conservation in the fishery; while eastern Maine should try to see what it can do in the way of selling fresh meat, rather than attempting to compete with canning areas which have unquestionably large advantages over it. However, it should be noted that this probably will never be more than a minor part of the fishing industry anywhere in Maine.

The shrimp fishery, which probably could attain the size of the crab fishery easily (a few hundred thousand pounds a year) has been given a trial (experimental fishing in 1938 and 1939), but it awaits a better introduction to the home market than it

has thus far. Like the crab fishermen, Maine shrimp fishermen (if any develop) can never hope for much of a market in a canning industry, if the Gulf of Mexico shrimping industry retains its present efficiency. A small local market (which probably would absorb as many shrimp as can be caught) could certainly be developed for fresh shrimp, if either the Department or private interests gave some attention to publicity.

Like crab canning, oyster planting in Maine periodically receives a great deal of attention by a few individuals, who foresee a major addition to the Maine fishing industry if their efforts succeed. This is probably encouraged by the knowledge that natural oyster beds did exist on the Maine coast at the time of arrival of the early white settlers, even though they had been exploited by the Indians for many years previously. Since the beginning of the eighteenth century, however, Maine waters have yielded comparatively few oysters, and there is some doubt as to whether they ever were very productive. Evidence is quite conclusive that although oysters will live in Maine waters, they reproduce so slowly that no commercial fishery could be successfully based on them. Low water temperature, and relatively high salinity cause a very high loss of set, and a correspondingly small increment to the oyster bed on which the fishermen would have to depend.[25] The case for transplanted oysters is little better. They could be

25. The history of exploitation and the ecological background of the Maine oyster fishery is discussed fully in Galtsoff, P. S. and W. A. Chipman, Jr. "Oyster Investigations in Maine", Washington, Sept. 1940, unpublished ms. pp.50, Appen.pp.16.

brought from Virginia or Connecticut, allowed to mature in Maine water, and thereafter be sold as Maine oysters, but the wisdom of this procedure, although it can be proven only by experiment, is definitely questionable. Growth probably will be slow compared to that of oysters in Long Island Sound or Chesapeake Bay; and there is a paucity of suitable locations for oyster cultivation(proper bottom in a relatively shallow, well-protacted bay). In all, Maine probably can import all the oysters it will consume much more cheaply than it can grow them. Experiences with oyster planting in the Canadian Maritime provinces, which have many more suitable locations than Maine possesses, seem to bear out this point.

Comments on the quahaug, or hard-shelled clam, have the same general tenor. Quahaugs, like oysters, are at home in warmer water than the Maine coast can offer, even though a few are still brought in by fishermen in Casco Bay. In addition, there is really no demand for quahaugs where a large supply of soft clams is always at hand. The soft clam, some chowder connoisseurs to the contrary, is considered by the public a much better flavored fish.

Of this group of shellfish Maine fishermen will probably derive the most benefit from a persistent program of building up the soft-clam flats; although there are some possibilities in the scallop fishery. If there are time and facilities, Maine can get pin money by paying some attention to crabs and shrimps, but it should forget entirely quahaugs and oysters, even though the latter may sound appealing as a luxury product.

E. THE SARDINE INDUSTRY

By far the largest fish preserving industry in Maine is dependent on the generally abundant schools of herring which are caught in coastal waters. Since 1875, when the first experiments were made in sardine canning herring fishing, and the demand for factory labor have materially aided in the support of families of coastal fishing communities. At one time, when boats moved more slowly than they now do, and when sardine packing required more hand labor than it now does, more than twenty coastal towns had canning factories where both men and women found seasonal employment. At present, however, the number of towns has been reduced to twelve or thirteen, depending on the year; and over two thirds of the sardine output is canned in two towns, Portland and Lubec. Although it is still important in the Maine fishing industry, sardine canning, because of this concentration, does not figure in the life of the average coastal community as much as it once did. Like the groundfish trade, it has felt the force of centralization.

After a preliminary examination, the investigator concluded that it was neither necessary, nor within the scope of this study to make detailed recommendations concerning the sardine industry. The reasons are several.

1) In the first place the Maine sardine industry is, as far as fishing enterprise is concerned, quite well organized, and on the whole under the management of alert and capable men. Experienced and informed as most of them are, it is reasonable to

Figure 26. Sardine canning once made substantial additions to the income of a number of coastal towns. With concentration of the industry at Lubec and Portland, however, these towns have lost all but the abandoned factory buildings. Remains of a Millbridge Cannery.

assume that individually or cooperatively they will be able to expand their market as the opportunity arises without governmental guidance.

2) The market for sardines is quite complex, and almost entirely dependent on the approach of the individual canner to it. In general there is specialization in sectional markets, one organization concentrating on the Pacific coast, another on the South, another on the Midwest, and so on. A large factor appears to be the preference for individual brands which has been built up over a period of years, for operators often say that even superior quality cannot overcome preference for a familiar brand. Canneries have been bought for the brand which the operating firm had copyrighted, and there is at least one instance of success based on plagiarism.

3) The market situation is further complicated by intense competition from other fishing regions. During normal times Maine's efforts in the high quality field have not been very successful in competition with Norwegian, French, and Portuguese factories because Maine canners nearly always have difficulty in obtaining the small fish which consumers have come to associate with expensive sardines. On the other side of the picture is California, which can produce cheap sardines cheaper than Maine. The prolific pilchard fishery of the California coast gives a far greater return per unit of fishing effort than the Maine herring fishery; the result being considerably lower raw material costs for the California factories. For the time being Maine is somewhat

relieved by decreased competition on the high priced goods because of the war, but ordinarily the Maine canner must run the gauntlet between Norway and California. His success is entirely dependent on his connections, his business acumen, and managerial ability. With the whole of theUnited States as a sardine market, there is little to do, except hope that Yankee ingenuity will continue to hold its own.

4) There is little that can be done toward an improvement of transportation for sardines, short of granting that commodity a special tariff on the railroads, an unlikely event. The necessary major adjustments toward transportation conditions already have been made. Within the last fifteen years there has been a notable transfer of canneries from the more isolated towns of the central Maine coast to Portland, accomplishing a considerable saving both on imported materials and on exported product. Canneries in eastern Maine, after trials of many different methods of shipment have finally settled on shipment into the Midwest and Far West mainly by Canadian railroads, which at present offer the cheapest rates, and best service to canners. There are no other practical solutions to the transportation problem.

5) Fishing equipment, which is largely in the hands of companies or individuals with capital, is for the most part modern and efficient. Fast, seaworthy boats, dependable gear, and the latest devices in ship-to shore communication are now the rule for both the seiners and the sardine carriers. It is improbable that any improvement can be made in this respect, either.

In all events there is little possibility of major external readjustments in the sardine industry, and within the scope of this investigation no internal maladjustment serious enough to occasion recommendations.

F. THE SMOKED HERRING TRADE.

Another market for herring caught by weir keepers or seiners has been in the smoked herring trade. Off and on for many years, herring smoking has been a minor industry associated with the sardine towns of eastern Maine. Although it is good compliment to sardine canning because its seasonal demands for labor are the opposite of the canneries' it has been always a child of the tariff. While it had a good protective tariff, as in the period from 1900 to 1915, and 1922 to 1938, it prospered, but when the tariff went down, as happened during the war, and again recently, the business of smoking and boning herring went down accordingly. Canada, and especially the island of Grand Manan, is at present able to supply the finished product, Lubec operators say, at less than the cost of production in Maine. The result has been a decline in the American (Maine) business, with operators keeping themselves going by handling New Brunswick herring. If a higher duty is again placed on smoked herring, the boning trade will again revive, at least to the extent of supplying the declining market which it possesses. But it probably never will be a large market for herring fishermen in the future because of the diminishing demand for heavily smoked fish. The sardine factories must remain the principal dependence of both fishermen and workers connected with drawing herring from the sea.

Figures 27 and 28. Maine herring smokehouses.

J.W. BEARDSLEY'S SO

CONCLUSION

Maine's fishing industry is in the doldrums. There can be no doubt of it, when Maine's dealers and manufactures depend on foreign sources for part of their fish supply, when Maine stores sell fish caught by Boston trawlers, and when 90 percent of the fishermen in the state earn so little that they do not have to file an income tax return. There are a few cases of recent success by fishermen along the coast, but they are very few. So few, in fact, that one cannot escape the conclusion that something is fundamentally wrong---something that is not answered by the frequently made contention that Maine fishing has gone by the boards because all the more energetic and more capable people have moved out of the coastal towns.

In a general way, what the situation is, what is wrong, and what should be stressed, what forgotten in starting a program of rehabilitation, has been set forth in the preceding pages. A recapitulation, however, and a few additional facts may help to clarify the picture that the investigator hopes to present.

It has always been said that when a man is down, everyone tends to step on him. In a sense that describes the situation of the average fisherman in Maine very aptly. Potentially there are enough fishery recources on the Maine coast to support comfortably the present population of fishing families. The standard of living may not be quite as high as the one every independent Yankee feels he is entitled to, but it can easily equal the standard of the average New England farmer, and exceed that of the average New England factory worker. Now, however, it is doubtful if

there is a lower standard for any occupational group in New England than for the average Maine fisherman.

With the resources maintained at their optimum point there should be enough to provide an adequate income even to the man who specializes on a seasonal fishery, like the lobster fishery or the groundfish runs, and a good income to the man who is willing to follow all of the seasonal fisheries.[26] At present many barely make both ends meet by turning a hand to everything that they can think of doing, and meeting disheartening competition at every turn.

The fisherman, like the average small businessman, is inclined to look at everything in terms of costs of production and prices prevailing for his catch without going a great deal farther, and accounting for fundamental reasons for each. If he loses, while other fishermen are making money he looks for the mistake in his method; if all lose for a while, they take it as one of the risks of the economic system; but if all are near loss consistently, they are certain to raise the charge of the price control against the middleman, whether the middleman is actually responsible or not.

Actually, however, there are several other factors just as important as price control in keeping the fisherman's below the necessary minimum. Local profiteering on fishing equipment may have an effect; inefficient methods of fishing and handling must be considered; transportation costs on the finished product have an unquestionable effect in Maine; as do depleted or insufficient

26. Summer: inshore groundfish, surface fish (including herring); autumn: lobsters; winter; clams, smelts, inshore flounders, other groundfish offshore; spring: scallops, lobsters, cod.

resources and competition with foreign or other domestic fishing areas.

As far as the finny fish trade is concerned, two of the factors apparently may be ruled out. There is little evidence of price control, either through local monopoly of facilities, or through general monopoly for the state. No one company has a sufficiently large share of the trade to dictate prices, and no single dealer is so isolated that his fisherman cannot sell their fish in a neighboring port if they feel that they are not getting a fair deal. Prices generally follow the Boston market closely, generally lower, of course, by the amount of the shipping rate to Boston. At times, however, local demand may make the Maine price equal the Boston price, but that is seldom.

There also is little evidence of profiteering on fishing equipment. The more expensive, and less frequently used items of equipment usually are ordered directly from Boston, or from the factory where they are made. There is little opportunity for a local dealer to profiteer on such items, because the fisherman is too well acquainted with their value. Marine engines, seines, trap nets, and trawl nets are items of this sort. Smaller items, like twine, hooks, and all items of marine hardware, are stocked locally, but prices quoted nearly always are just for their locality. Interestingly enough, many items of this sort differ very little in price along the whole coast because of jobbers' practices of quoting delivered, rather than f.o.b. prices. One can buy a tub of trawl, for example, at only a few cents more in Eastport than in Portland.

Table 5 Prices at Several Ports of Selected Items in Common Use by Maine Inshore Fishermen, summer 1939.

Port	Copper treated hawser lay pot warp* per pound	Tub of line trawl, completely set up**	Gasoline per gallon
Portland	28 ¢	$ 10.75	15 ¢
Boothbay Harbor	28	11.25	17
Rockland	27	11.25	17
Vinal Haven	27	11.00	18
Mt. Desert Island vicinity	28	12.00	18
Jonesport vicinity	27	12,00	19
Eastport-Lubec	28	11.75	20

* Rope used for attaching lobster traps to marking buoys. There are several grades of pot warp in use among fishermen, of which this type is considered most durable.

** A tub of trawl, as far as inshore boats are concerned, generally means about 3000 feet of 12 pound ground line, to which 500 to 550 hooks are attached by as many short lines, or "ganging." 525 hooks and 3000 feet of line were used for these calculations, which were made from fishermen's estimates, and dealers' prices.

after 58

On the other hand each of the remaining four factors has a certain amount of weight in accounting for the state of the fresh-and-frozen trade in Maine. Fishermen repeatedly assert that all of the more desirable species (cod, haddock, flounders) are in an alarming state of depletion on inshore grounds. Fishermen working out of Jonesport, Manset, Rockland, Vinal Haven all state that catches are notably less than formerly---enough on some grounds to cause the abandonment of fishing. The reason stated in most local comments on the subject was that the small grounds characteristic of inshore waters are kept in a permanent state of low productivity by the periodic visits of Boston, Gloucester, or Portland draggers to clean them off. The local fisherman, who might fish with success on the small ground for weeks, is thus left without his resource. On the other hand, U. S. Fish and Wildlife tagging experiments carried on in the vicinity of Frenchman's Bay two years ago indicated that haddock abundance at that time was not as low as fishermen believed Many more data are needed on this subject; but if fishing by city vessels is proven to be destructive to inshore grounds, legal measures should, and could easily be taken to assure coastal fishermen the resource they need to maintain themselves. Although not the only resource of the small community abundant groundfish can mean the difference between bare subsistence and comfortable circumstances.

The remaining three factors constitute a group which explains more credibly the difficulties of the present Maine finny fish trade. They are difficult to separate, one from the other, for each has some bearing on the influence of the remaining two. The

strength of competition of the Boston otter trawl fishery, eliminating the possibility of any large market for Maine firms outside New England, is probably the initial factor, but it in turn is affected by, and has effects on transportion costs. The strength of Boston competition also is shown in the small volume of trade which Maine dealers have, a situation which results in inefficient methods of catching and handling. But inefficiency leaves Maine less able to cope with the competition, and so on.

Costs of production of fish vary a great deal in Maine, as elsewhere---depending on the skill of the fisherman, fish abundance in a particular season, and the condition of gear and boat. The investigator found it almost impossible to arrive at any satisfactory average, due to lack of records, variations in the intensity of fishing, and difference in the type of equipment. However, a few reliable records of fishermen considered skilled in their communities afford a picture of conditions in 1939---from which only slight changes can be expected for present calculation. The following generalities come out of them. Fishermen along the Maine coast who go out for groundfish (which form the bulk of the finny fish trade) make up two quite distinct groups: those in isloated communities; and those who are able to land their fish at some port with a fair-sized local market, or good connections with it. Fishermen out of Portland and Rockland are good examples of the latter, Vinal Haven fishermen of the former. In a rough way one can say that ine group is found in western Maine (i.e. west of the Penobscot), the other in eastern Maine. In general, the fisherman of the isolated community has higher production costs, and gets less for his fish than

the man nearer the market; one can go enough further to say that the isolated fisherman makes little more than he would working on relief, while the better located makes a fairly decent, although by no means high wage.

The average small groundfisherman in Maine fishes a set of line trawls for two or three months of the year (probably thirty days fishing) from a small boat powered by an old automobile engine. He usually goes alone, his day's fishing being limited by the lines he can haul, or by the capacity of his boat. On even moderately rough days he must stay in, so that fishing days are lost even in summer, and bad days are so frequent in winter that he rarely tries to fish from October to April. He is further handicapped in that he is limited to the distance from shore that he can travel and return within a day or day and a half. Not counting his own wages, he can catch fish for .5 to .6 cents per pound during the season. (See Table). Depending on the species which he brings in he may get from 1/2 to .1 cent per pound for them in the summer season, (hake, which compose over half the total catch range, between 1/2 and 3/4 of a cent a pound), and during the winter half year, when very little is brought in, prices may run from .2 to .5 cents per pound. In all he averages less than a half cent a pound for his own wages and profit. Small boatmen fishing for groundfish consider themselves lucky in most cases if they make $50 a month above expenses <u>during the season</u>. The rest of the year they try to find something else that will add a little to their income, but the only other

Table 5

AVERAGE PER BOAT COST OF OPERATION OF EIGHT MAINE LINE TRAWLERS, 1938 AND 1939.*

Wages and provisions	no data
Other expenses:	
Depreciation	60.00
Repairs and renewals	45.00
Gear replacement	94.00
Gasoline and oil	114.50
Bait	131.00
Miscellaneous	16.00
Total	460.50
Fish landed, pounds	74,000
Number of trips	no data
Average per pound cost without wages and provisions	.0062

Table 4

AVERAGE ANNUAL PER VESSEL OPERATIONAL COSTS OF FIVE MAINE DRAGGERS, 1938 AND 1939.*

Wages and provisions	no data
Other expenses:	
Depreciation	275.00+
Repairs and renewals	179.00
Ropes and nets	275.00
Fuel and lubricating oil	645.00
Ice	289.00
Insurance	120.00
Miscellaneous	98.00
Total	1881.00
Fish landed, pounds	251,000
Number of trips	no data
Average per pound cost without wages and provisions	.0074

* Diesel and gasoline powered; owner-captain; tonnage range 9 to 24 fishing inshore and small offshore grounds estimated.

activity in many of these towns is lobstering, which at present is little more remunerative. Work at pulp cutting, which at one time added to incomes of coastal towns, is now difficult to find, and farming was allowed to fall into neglect when fishing changed from a subsistence to a commercial basis. The annual incomes of many families in these small towns are less than $500--- where at one time they touched $2000 or $3000. This in tiself tells the story of unprofitable fishing.

Paradoxically, from the point of view of comparative costs of production the position of the small port fisherman is more favorable than his income indicates. The meagre data obtainable show that small port line trawl fishermen have lower per pound costs of production than either the small Maine draggers or the large Boston trawlers (Tables and). Apparently the small line trawlers and the small draggers of the Maine coast can hold their own in competition with the 300 ton vessels operating from Boston or Gloucester. The Maine inshore fisherman can get his fish to land cheaper than the offshore trawler. It is after the fish are landed that his trouble commences. To be sure, part of his difficulty comes in the small amount of fishing time which he can put in (because of weather and seasonal habits of fish on inshore grounds), but that is unimportant compared to the low price which he receives for his average fee. The low price, in turn, cannot be ascribed purely to the avidity of the local fish merchant, as fishermen commonly ascribe it. The merchant's choice of what to pay for fish is much more dependent on what he has to pay to get

TABLE 5.—Average operational costs per vessel of ten typical Boston otter trawlers, 1939 1/

Crew expenses	
Wages (includes shares of captain, engineer and fishing crew	$29,223.68
Provisions	5,229.00
Total	34,452.68
Other expenses	
Depreciation	4,745.92
Vessel repairs, renewals, overhauling, and wages of repair crew	14,990.50
Administration, shore departments	5,700.94
Ropes and nets	5,247.01
Fuel and lubricating oil	6,907.20
Wireless, compass, fathometer	2,565.24
Ice	2,896.34
Wharfage and brokers' fees	1,458.71
Taxes and royalties	628.08
Insurance	4,022.95
Miscellaneous	547.00
Total	49,709.89
Total wages and other expenses	84,162.57
Fish landed, pounds	3,611,438
Number of trips	25.8
Average per pound cost, wages and provisions included	.0233
Average per pound cost, without wages and provisions	.0137

1/ All are Diesel powered vessels ranging from 167 to 311 gross tons. They were owned and managed by four different companies.

it to market than upon his own whim. High transportation rates thus mean a low profit and low wages in spite of costs of production. From there on the effects are cumulative---there is lack of capital to invest in more efficient equipment, both for fisherman and wholesaler; there is uncertain supply, smaller volume, lack of means of preserving; and perhaps even a lack of any wholesale outlet for the fisherman.

If the circle of ill effects is to be broken, the first attack will have to be made on two points. The cost of getting fish from the small ports to their markets must be lowered, and some means must be found for making the small port fisherman less dependent on seasonal landings.

It is quite hopeless to attempt any reformation of existing modes of shipping fish. The present common carriers cannot afford to include some of the fishing towns in their itineraries, or lower their rates on fish where they do stop. The only possibility for improving rates seems to lie in establishing a collection service exclusively for fish, like the one now in operation along the northern Nova-Scotian coast. The most practical method of doing this in Maine at present would be through a trucking service, rather than by boat, as in Nova scotia.[27] The initial investment would not be large, for a five-ton truck could be purchased for $2500 or less (depending on make); and the operating costs would be sufficiently low to reduce the rate on fish to about a fifth to a tenth of its present amount from some towns.

27. By private interprise, with state supervision, or state ownership if private enterprise cannot be interested. The Nova Scotia service is government owned.

Carefully worked out estimates of the cost of operation of a five ton truck (manufacturer's estimate, including driver's wages, licence fees, depreciation, interest, insurance, as well as gasoline, oil and repairs) show that one will run for 9 4/10 cents per mile. Accepting this estimate, and assuming that the service would be operated at cost, the enormous saving which could be made for the fisherman is shown by the fact that the fish rate from Rockland to Portland would be only 1.8 cents a hundred,[28] whereas the present rate is 37 cents a hundred. Rates from other ports would be reduced even more strikingly. If the truck were to be used in interstate operation the rate would be raised slightly, but still would be only a fraction of the present cost, and represent a great saving to the fisherman.

Another difficulty for the small port now is the fact that it has no means of preserving fish at its disposal except salting, and the sale of salt fish is declining yearly. The volume of the few remaining small port merchants is not sufficient to support the elaborate quick-freezing plants which now seem to be the only acceptable means of preserving fish. The Maine small port fisherman and merchant thus cannot iron out the ups and downs of their markets (assuming that all the fish brought in are accepted by the merchant) as well as the dealer in the large port. The result has been a curtailment of fishing in many of the smaller ports because dealers will accept only what they see an immediate

28. This estimate is made on the basis of the truck's being three-fifths loaded one way only. Return trips would very likely be empty.

market for. The only possibility of eliminating this disadvantage lies in the development of some low cost freezing equipment which could be adjusted to the volume of the average small port. This will be more a matter of experimentation than for the trucking service, but there are definite possibilities. In the course of experimentation on electrical appliances, and methods of preserving foods, the Tennessee Valley Authority has developed a small quick freezing unit which has operated very cheaply on fruit freezing for three seasons.[29] The problems associated with fish-freezing differ somewhat from those associated with fruit freezing, but the process is similar enough to offer hope in this respect. If it proves as practical for Maine fish as it has for Tennessee fruit, Maine fish might be sold in the Maine marketing area during the winter, when few catches are made, and production might expand at other seasons.

The other major section of the Maine fishing industry differs a good deal in the character of its problems from the finny fish trade. A diagnosis places the emphasis on other factors in the list of reasons for a sickly business. Two factors may be eliminated at the start. Unlike the finny fish trade, transportation costs do not appear to be an important factor as far as Maine lobsters are concerned. Maine has an advantage of distance over its major competitors, and so many lobsters are carried so cheaply

29. See J. P. Ferris, and R. B. Taylor "Immersion Quick-freezing" Mechanical Engineering, June, 1938, pp 437-442. Cost of the "freezing operation" for 119,000 pounds of fruit was 0.29 cents per pound. (It should be noted, however, that the operation differs from fish-freezing, and costs are not wholly comparable).

by water to Boston, that there is little hope of improving rates---and even if improvement were to be made, it would mean little, since the cost of transportation (excepting from wholesaler to retailer) represents only a small fraction of the cost of the lobster.

Profiteering on equipment may also be eliminated as a factor, for as for the finny fish industry there is little evidence that local merchants are charging excessive prices for equipment locally. Prices of twine, rope, and oak ribs differ very little from one town to another; gasoline, although higher than in southern New England, differs only a cent or two from one town to another in the important lobster sections; and a boat, even when it is not built by the fisherman himself, can be bought more cheaply than anywhere else in the country. However, it must be pointed out that fishermen in the principal competing areas (Canada and Newfoundland) have from 15 percent to a 20 percent price advantage in the purchase of their equipment, a fact which accounts no little for the difficulties which Maine is having in competing with imported lobsters at the present price. Since this is a national difference rather than a regional or sectional affair, little can be done toward giving Maine equality outside of establishing a tariff, and that is not a state affair. Improvement of the competitive position of the Maine lobsterman must be looked for in some other quarter.

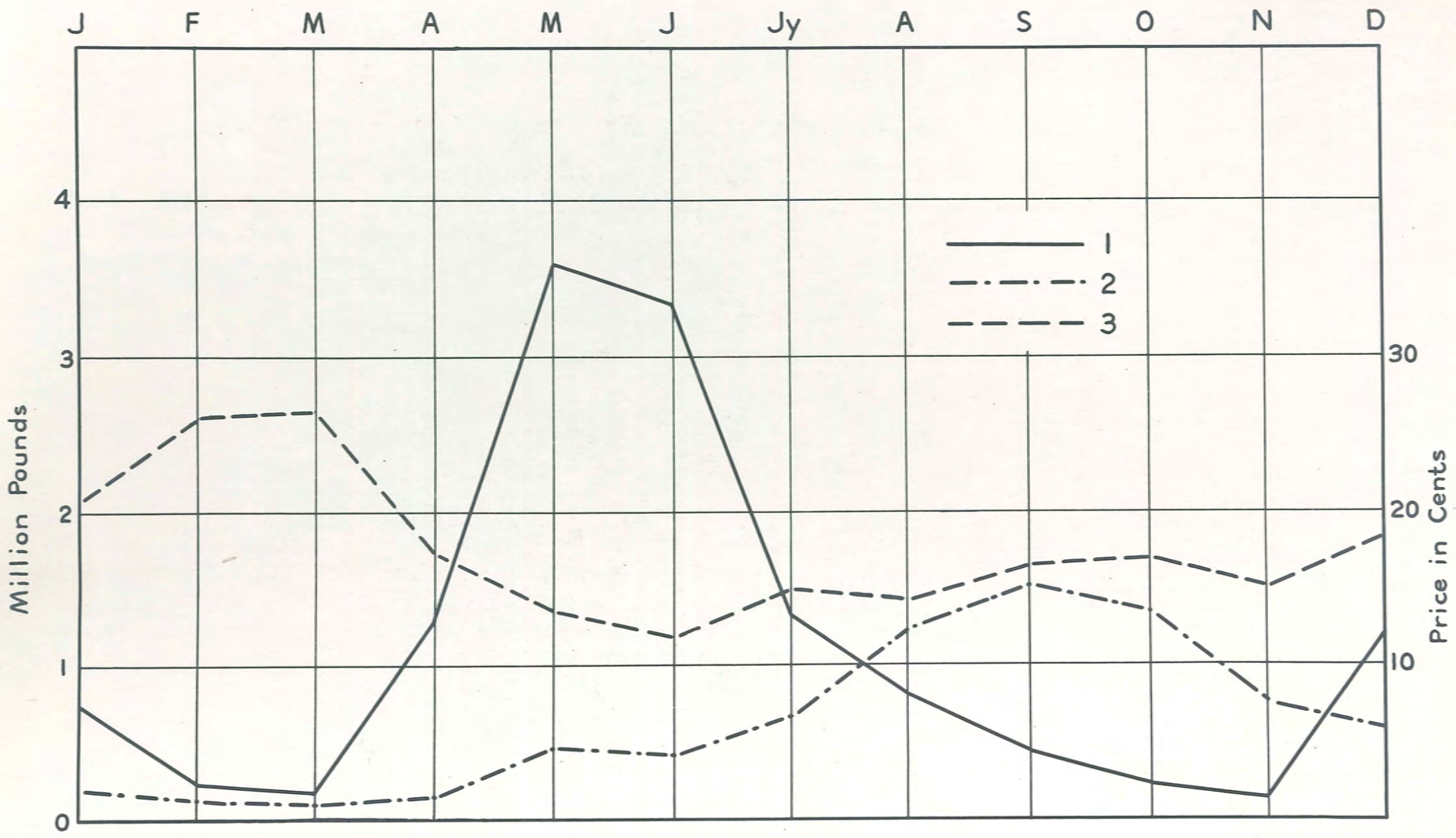
One possibility for improvement in the present lobster trade conceivably could come in a stabilization of prices, and if

stabilization is not feasible at least a diminution of the present large fluctuations would seem desirable. The customary behaviour of the lobster market brings high prices during the winter months, when they mean almost nothing to the fisherman, and astonishingly low prices during the months when Maine lobsters are landed in quantity. (Figure) To a certain extent the price fluctuations are to be expected as the normal response to increase or decrease in supply, but the present range is so great that the Maine fisherman gleans very little profit, if any, during his fishing season. In view of the dominant position of a single company in the lobster market charges of market manipulation to suit dealer's needs have naturally appeared among the fishermen. This is neither proved nor disproved, but present evidence indicates it is much more likely that heavy importation of Canadian lobsters during the early part of the Maine fishing season depresses prices to the low points they reach. Agreements between this country and Canada,[30] whereby the arrival of lobsters from the Maritime Provinces might be staggered so as to have the minimum depressant effect on the market, seem to be the first logical step in ironing out the difficulty.[30] If that is not successful, then further investigation of the trade structure is to be recommended.

Fishermen who accept the entry of Canadian lobsters as the reason for their plight tend to think that the application of customs duties to Canadian lobsters is a certain, obvious remedy;

30. Suggested at the New England Lobster Conference in 1941, but not yet negotiated.

Figure 29. The price paid Maine lobstermen for their catches appears to be directly correlated with the volume of imported lobsters entering this country from Canada and Newfoundland. 1. Imports of lobsters into New England from Canada and Newfoundland, 1940; 2. Lobsters landed by Maine fishermen, 1940; 3. Average monthly prices paid to Maine fishermen for their lobsters. The graph was made from data collected by Mr. Leslie Scattergood. U. S. Fish and Wildlife Service for The North Atlantic Lobster Conference.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and therefore clamor for tariff revision. However, it is entirely questionable that application of a duty would be any cure for the situation without other measures. Of the twenty to twenty-five million pounds consumed in this country annually, Maine supplies only seven million, and all New England only ten million. A duty would not only operate to the disadvantage of the consumer, but conceivably might operate to the detriment of the Maine fishery by intensifying attention to it. Other methods of cure, although they might not be immediately so effective, would be sounder in the long run.

It is hard to see how any improvement in equipment might improve the situation of the lobster fisherman. All use the only device known to the trade - the lobster trap, or pot, and considering the habits of the lobster, it is unlikely that it will be changed materially. The lone avenue for improving equipment seems to be in the possibility of using better engines than the second-hand automobile engines which form a part of every lobsterman's equipage. It can be proven that a small marine diesel not only operates more cheaply, but in the long run is a sounder investment, giving the fisherman more hours running time for dollar invested than the gasoline engine. The principal objection to use of the diesels at present seems to be the large initial investment----no fisherman is certain that he will stay with his present occupation for the length of time needed to pay for one, and in most quarters the average fisherman is not considered a good credit risk. However, even if diesels were generally adopted by fishermen no great

reduction in the cost of catching a lobster would be obtained. More results from efforts toward improvement are probably to be had in other ways.

The most obvious way to decrease fishermen's costs of production, and thereby increase their earnings, is to increase lobster abundance - the line that the state has been sponsoring for some years. If the present half pound per trap-haul can be doubled Maine fishermen will not need to worry so much about Nova Scotian and Newfoundland competition.

Whatever the measure----increased abundance, establishment of minimum prices to the fisherman, it is certain that something will have to be done for the lobsterman, if he is to earn a decent amount for his labor. The present average cost of catching a pound of lobster ranges between 11 and 12 cents, (Table)not counting wages for the fisherman. Depending on the community he was in, average prices to him ranged between 15 and 19 cents (absolute maximum and minimum price 26 cents and 8 cents) during the last five years. During five months fishing time he could expect to catch 4500 to 5000 pounds and for his long hours and hard work he earned (after all expenses were paid) $50 to $55 a month. One could hardly call that a just return for the tedious task of pulling traps.

Maine's problem thus appears to be principally one of building up the specialty phases of its fishery, assuming that it thinks it desirable for people to remain in the coastal communities.

Table 6

AVERAGE ANNUAL EXPENSES OF 30 MAINE LOBSTERMEN, 1939.*

Wages and provisions	no data
Other expenses:	
Boat depreciation	85.00
Repairs and renewals	50.00
Gear replacement	175.00
Gasoline and lubricating oil	125.00
Bait	130.00
Miscellaneous	56.00
Total	619.00
Lobsters landed, pounds	5150
Average per pound cost without wages and provisions	.1201
Number of traps fished	135

* Lobstermen from twenty different localities, fishing at least six months of the year.

Considering its disadvantages in relation to the national market, it had best forget attempts to engage in the off-shore fishery in competition with Massachusetts, concentrate on improving distribution of finny fish within its own marketing area, and cultivate those species of shellfish which could be built into a profitable resource for the inshore fisherman. Although the fisherman probably will not be able to concentrate on one species and make much of it, with a moderate initial expenditure on the part of the state, and a little restraint and cooperation on the part of the fishermen themselves, Maine's inshore fisheries could be made a much more valuable resource than they now are---houses might again be painted in some of the coastal towns, children become a bit more healthy, and a general air of optimism return.

Table 6 Average DAILY PRICES OF HADDOCK, LARGE COD, HAKE, AND REDFISH

for Twenty Sample Days Summer 1941 ---Boston, Portland, and four small Ports in Maine. (in cents per pound ex vessel)

HADDOCK			LARGE COD			HAKE			REDFISH	
Boston	Portld.	4 ports	Bost.	Portl.	4 Ports	Boston	Portl.	4 Ports	Boston	Portld.
7.0	8.0	4.5	7.5	4.7	3.0	5.1	4.2	---	1.9	1.3
5.0	5.5	4.0	4.0	4.0	2.5	4.0	4.0	---	1.9	1.2
5.5	5.2	3.5	4.7	5.8	----	5.0	5.5	---	1.8	1.3
5.0	7.0	3.5	4.7	5.0	2.5	4.7	5.0	---	1.3	1.6
5.0	7.0	3.5	6.4	4.0	3.0	4.7	5.0	---	1.9	1.3
4.0	5.0	3.0	6.0	5.5	---	4.0	5.0	---	1.7	1.2
5.5	4.5	---	4.0	2.7	---	5.1	3.0	---	1.8	1.3
5.2	4.5	3.0	4.2	3.0	2.5	3.0	1.7	1.2	1.7	1.2
4.0	5.0	---	4.7	2.7	1.7	2.7	1.7	0.8	---	---
4.0	4.0	2.5	3.5	2.2	2.0	2.7	2.0	1.0	1.5	1.0
3.5	4.0	2.5	6.5	3.5	2.0	2.0	1.3	0.7	1.2	1.0
3.6	6.0	2.5	5.5	2.7	1.5	2.0	1.2	0.7	1.4	1.0
2.6	4.0	2.5	3.0	3.0	---	2.5	1.5	0.8	1.5	1.0
4.0	3.2	---	4.0	2.5	---	---	----	0.8	1.4	1.0
3.2	3.2	---	4.0	2.5	---	3.0	1.2	0.8	---	---
3.6	3.2	2.5	3.5	2.0	---	3.0	2.0	1.0	---	---
3.6	3.2	2.0	3.5	2.5	1.2	---	---	1.0	1.6	1.0
3.5	4.2	2.5	3.0	3.2	1.7	5.0	2.7	1.2	1.2	1.0
4.0	4.5	2.5	5.5	3.0	2.0	4.0	3.0	---	---	---
4.0	4.0	2.5	5.0	3.0	2.0	5.0	4.0	---	----	---

Dashes indicate no data.
Redfish landings in small ports were so few that data are insufficient to form average prices.

Table to be typed with 3 carbons

Note to the Chief,

I don't wish to stand up for the average of the small ports, which represent an average of all sorts of data.

Ports: Vinal Haven, New Harbor, Prospect Harbor, Manset, Swan's Island.

Four ports used in each average although they are not always same four.

SEP 8 1947

Survey of Marine Fisheries of Maine

University of Maine

NOV 6 1947

J. Thomas Pedlow
Executive Director

Orono, Maine

Comments on "MAINE'S INSHORE FISHING INDUSTRY - PRESENT STATUS AND POSSIBLE READJUSTMENTS" by E.A. Ackerman

1. The title is no longer valid as the study is definitely dated.

2. The study is of value as history and as a prediction. The conditions which are depicted will probably return in large part unless action is taken by the industry to prevent it. Preventive or remedial measures must be taken by the industry itself. The report might be published with this slant to it.

3. The author's vision seems to be quite limited, "... houses might again be painted in some of the coastal towns..." The sea is perhaps Maine's greatest natural resource.

4. That salt fish is still an important world commodity is shown by the attention given it by the Division of Fisheries of the F.A.O. As far as Maine is concerned the salting of fish is a marginal or sub-marginal activity with little or no chance for profit. The standard of living we are interested in is too high to be supported by the salting of fish.

5. Page 17 - Ground fish "... contributes 9/10 of the Maine seafood supply and is the only element which offers promise of extensive expansion". The war stimulation showed this to be incorrect. "Those 4,000,000 pounds of groundfish will very likely remain a maxium contribution of Maine fisheries to the outside fish trade." If the demand is increased, Maine's contribution will increase.

6. The distribution of various commodities oftentimes appears entirely unreasonable. A large number of eggs produced in Maine are collected by Hoods, taken to Boston for sorting and packing, and shipped back to Maine for sale to consumers. It appears untrue that"Portland owes its preeminence primarily to the vagaries of the system of public transportation in Maine."

7. Page 43 - The responsibility for the future of the lobster industry rests squarely with the lobster industry and not with the legislators as stated by Ackerman.

Woods Hole Laboratory
Manuscript Report Number
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Survey of Marine Fisheries of Maine

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Executive Director

Orono, Maine

8. The smoking of fish for preserving the flesh is, like salting, a sub-marginal business and a relic of the days before ice and refrigeration. The smoking of fish for the flavor produced does have a future.

9. It appears to me that the best part of the report is the central portion covering the marketing and distribution. Cooperative enterprises are proving successful in other fields in solving the problems mentioned here.

10. If this paper is to be published as representing conditions at present, it will have to be entirely re-written. It would have considerable value as presenting pre-war conditions, but it should have considerable editing and condensing. Dow is correct on the section covering the sardine industry; it might as well be deleted in its entirety. As it stands the study has accomplished nothing; if it is published, some good might come from it.

J. T. P.
J. Thomas Pedlow
Executive Director

September 5, 1947

JTP:jc

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50
100 Miles

-100,000

+10,000
-100,000

YEARLY REPORT OF FISH BROUGHT INTO MAINE PORTS

Compiled by Sea and Shore Fisheries

Boothbay Harbor, Maine

Year of 1939.

Species	Number	Pounds	Bushels	Average Price	Total Value
Cod (large)		3,623,402		.0291	105,667.02
(market)		3,467,029		.0304	50,331.28
(scrod)		384,811		.0105	3,006.56
Haddock (large)		4,291,395		.0455	195,494.53
(scrod)		506,199		.0193	9,805.69
Hake (large)		3,663,133		.0182	53,379.05
(medium)		1,939,417		.0283	55,579.72
(small)		135,383		.0124	1,564.17
Pollock		3,401,762		.0134	33,284.57
Cusk (large)		1,799,166		.0304	54,705.67
(small)		144,388		.0104	1,511.77
Rosefish "redfish"		5,419,935		.0114	61,980.37
Spawn		10,751		.0445	478.56
Flounders (gray sole)		833,523		.0396	33,037.38
(blackbacks)		607,943		.0198	11,995.07
Halibut		49,093		.1992	9,780.63
Crabs	3,358,777			.0067	33,723.92
Herring - Maine			794,324	.5661	449,617.82
Whiting (dressed)		736,747		.0077	5,833.58
(round)		3,368,897		.0036	13,367.65
Bloodworms & sandworms	15,034,335			100 @.75	183,781.56
Sharks		39,952		.0300	301.16
Livers		73,907		.0149	1,108.53
Clams		331,981		.6317	209,711.63
Alewives (bluebacks)		1,665,556		.0103	17,153.44
Lobsters (Maine)		6,635,409		.1563	1,036,155.31
(Canadian)		1,383,403		.1511	208,934.03
Mackerel (large)		443,834		.0507	33,551.06
(medium)		1,150,035		.0316	36,349.82
Smelts		63,384		.0831	5,187.45
Scallops		394,965		.1411	55,766.81
Wolffish		41,360		.0131	541.11
Sea Eggs		54,417		.0047	360.09
Butterfish		53,155		.0368	1,909.40
Shrimp		19,864		.0425	845.18
Shad		9,366		.0532	493.16
Tuna		94,590		.0401	3,797.40
Swordfish		57,993		.1938	11,241.90
Salmon		7,563		.36	1,966.13
Quohaugs			30±	.50	15.13
Total value for the Year					$2,899,303.00

groundfish.
non-ground related 2,702,554

gd. $701,241.82

WHLRD 47-01

Report on fish distribution in New Bedford. Anonymous. (1947).

EXTRA DATA PAGES ARE AVAILABLE FOR YOU TO PHOTOCOPY

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