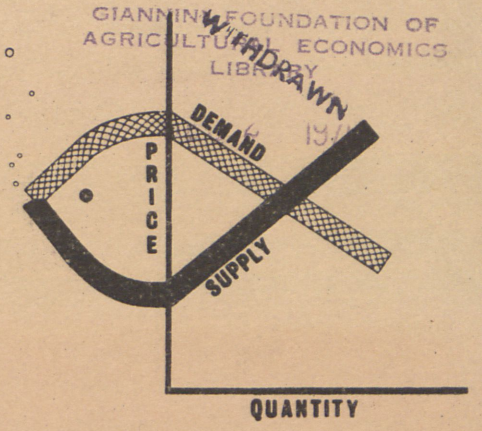

INVESTIGATION OF FISH LANDING PATTERNS AT STONINGTON, CONNECTICUT WITH A VIEW TO DEVELOPMENT OF NEW MARKETS

By

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ABSTRACT

Investigation of Fish Landing Patterns
at Stonington, Connecticut with
a View to Development of New Markets

by

Darrel A. Nash

Annual landings have been gradually declining at the Stonington, Connecticut fishing port. The port has not developed processing or marketing facilities comparable to many other New England ports.

A substantial fishery can be supported within one or two days of shore and therefore a very fresh product is landed. There remains to be developed a suitable processing/marketing mechanism to deliver this quality product to final markets.

This project evaluates the potential of the existing fleet, the fishery resources which could be utilized, and the earnings possibilities of an established fishery there. This shows the products available to a potential buyer and the requirements in terms of earnings to maintain a fleet at the port.

Investigation of Fish Landing Patterns at Stonington, Connecticut with a View to Development of New Markets

In November 1967, the Southern New England Fishermen's Association at Stonington, Connecticut, contacted Bureau personnel in Region 3, asking them to investigate potentials for attracting additional landings of fish at Stonington. Fishermen have gradually left to land at other ports with a subsequent decline at Stonington, although several of these vessels remain registered there. The other ports at which Stonington's vessels have landed fish in recent years are: Point Judith, Rhode Island, New Bedford, Massachusetts, and Greenport, Long Island. Most of the fishermen continue to live at Stonington and have expressed the desire to begin landing there again if a staisfactory outlet for the product could be found.

There are currently about 14 small otter trawlers, known as draggers, registered at Stonington. All are very similar in design, being about 60 feet overall length. There are also about 20 lobster boats, which are registered there and land their entire catch at Stonington.

The dock at Stonington has only the minimum of facilities. It is badly in need of repair. The only improvement on the dock

has been an ice making machine which was installed about three years ago. In addition to this there is a shed for storing iced boxed fish. Nearly all the boats fishing from Stonington go out and return the same day. The fish are boxed and iced onboard in the round without processing. The boxed fish are picked up about twice a week by a trucking company and trucked to Fulton Fish Market in New York. Prices paid for fish landed at Stonington are approximately the same as that for the same species landed at other ports in southern New England. However, the trucking charge, the box charge, and the commission at Fulton Fish Market combine to make the net value of fish landed at Stonington considerably less than that at other ports in the area.

The dock is on town property. The property has been leased to the Association free of charge but implicitly at least there are several restrictions on this use. It is likely that any type of processing facility erected on the site would have significant opposition from residents of the town due to the possibility of odor resulting from a plant. Any decision to construct a facility in the area of the dock must be very carefully explained to the town council and a specific agreement on what types of processing are to be allowed on the site. It should be noted that the town council has been very helpful to the Association and has worked with it to consider means of improving the opportunities

for the fishermen. They have considered plans for processing plants on the town site.

I. Initiation of the Study

Persons from the Region 3 Technological Laboratory and Biological Laboratory, as well as from the Division of Economic Research, visited Stonington to determine the conditions of fishermen and the fisheries in Stonington. From the discussions, it was decided that an economic feasibility study should be done to determine what could be done to improve the marketing of these products.

To begin the study the Division of Economic Research asked the fishermen to provide rather detailed information on their fish landed both at Stonington and at other ports together with information on their fishing operations such as fishing costs, returns, time at sea, distance from port, and other similar information. Information was requested on their 1966 and 1967 fishing operations. Requested also was a breakdown by season of the year (quarter), species landed, value of landings, and size of the fish. The size breakdown requested was not meaningful except for certain species and few respondents provided size of fish landed. For this report all size classes are combined. The other information was sufficiently complete to obtain considerable information. The fishermen provided very good quarterly breakdown of the catch by port and by species. Value of landings was reported for about half the catch.

The response to the questionnaire is as follows: Two vessels provided data for the two years, nine vessels provided one year of data, (although some were not for a calendar year). and the others did not return the questionnaires. These reports then provide 13 vessel-years of information. There are 13 to 14 active fishing vessels registered at Stonington. These 13 vessel-years then can be taken to be the record of the full Stonington fleet for one year in the 1966-67.

The Electric Boat Division of General Dynamics, Inc., Groton, Conn. has done a careful and valuable study of Connecticut fisheries, particularly at Stonington. The record of the port since 1960 is analyzed. The problems of the current marketing arrangements are well documented. This study should be used as the basis for any development plan for Stonington. This report to the Connecticut Research Commission is entitled Study of Means to Revitalize Connecticut Fisheries Industry.

II. Analysis of Fish Landings by Stonington vessels

A total of about 9 million pounds of fish were landed by these 13 vessels, of which 5 million pounds are food fish. Table 1 shows the breakdown of landings by species and quarters. Combining all ports, the order of importance of the food fish species are blackback, yellowtail, scup and cod. Limited amounts of fluke and whiting are also landed, as well as a variety of other species.

Table 1. Catch of 13 Stonington vessels, by species and quarter, 1966-67 conditions

	Cod	Blackback	Fluke	Yellowtail	Scup	Whiting	Mixed	Industrial	Total Excluding Industrial	Total
Quarter										
1	81,171	277,868	-	207,571	70,000	-	3,600	1,928,855	640,210	2,569,065
2	63,275	741,500	3,552	527,573	146,414	44,841	17,869	1,280,925	1,545,024	2,825,949
3	9,503	572,522	40,691	596,338	260,409	27,200	15,918	510,835	1,522,581	2,033,416
4	122,522	607,167	15,110	381,210	94,165	17,425	66,562	356,070	1,294,161	1,650,231
Total	266,471	2,199,057	59,353	1,712,692	570,988	89,466	103,949	4,076,685	5,001,976	9,078,661
% landed per quarter										
1	30.5	12.6	-	12.1	12.3	-	3.5	47.3	12.8	28.3
2	23.7	33.7	6.0	30.8	25.6	50.1	17.2	31.4	30.9	31.1
3	3.6	26.0	68.6	34.8	45.6	30.4	15.3	12.5	30.4	22.4
4	42.2	27.6	25.4	22.3	16.5	19.5	64.0	8.7	25.9	18.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Food fish in general are landed heavily in the second and third quarters, with some decline in the fourth quarter. The first quarter is even lower, when only about 12 percent of the annual catch is landed.

Industrial fish are pursued most heavily in the first quarter. Nearly half the 4 million pounds total catch is landed in the first quarter. New Bedford receives 1.8 million pounds of this (See Table 2). Industrial fish are not landed at Stonington due to the lack of any means of processing at that port. If all vessels begin landing at Stonington again and keep the same seasonal patterns as the present landings there, the landings of the total fleet would be subject to much higher seasonal fluctuation than now exists.

The quantity landed by species, port, and quarter may be seen in Table 2. The percentage breakdown by species, quarter, and port is also shown.

Marked differences are shown in the species landed by port. At Stonington, blackback is unquestionably the most important fish landed, making up 60 percent of the total catch. Scup and cod follow with about 17 and 10 percent of the total, respectively. No significant quantities of other fish are landed there.

Table 2. Catch of fish by 13 vessels by quarter and port - Stonington, Connecticut vessels, 1966-67 conditions.

	Cod	Blackback	Fluke	Yellowtail	Scup	Whiting	Mixed	Industrial	Total Excluding Industrial	Total
Stonington	pounds									
quarter 1	57,875	120,875	-	-	-	-	3,600	-	182,350	182,350
quarter 2	34,625	427,125	2,275	18,700	90,300	25,400	17,000	-	615,425	615,425
quarter 3	-	173,700	8,050	300	99,357	25,800	14,300	-	321,507	321,507
quarter 4	77,287	183,105	1,238	1,000	68,665	14,175	39,607	-	385,077	385,077
annual	169,787	904,805	11,563	20,000	258,322	65,375	74,507	-	1,504,359	1,504,359
	percent of annual total, Stonington									
quarter 1	3.9	8.0	-	-	-	-	0.2	-	12.1	
quarter 2	2.3	28.4	0.1	1.2	6.0	1.7	1.1	-	40.9	
quarter 3	-	11.5	0.6	-	6.6	1.7	1.0	-	21.4	
quarter 4	5.1	12.2	0.1	0.1	4.6	0.9	2.6	-	25.6	
annual	11.3	60.1	0.8	1.3	17.2	4.3	5.0	-	100.0	
New Bedford	pounds									
quarter 1	10,370	48,750	-	156,000	-	-	-	1,765,360	215,120	1,980,480
quarter 2	12,100	110,475	-	360,554	20,000	-	200	187,180	503,329	690,509
quarter 3	300	46,000	12,060	232,600	10,000	-	-	-	300,960	300,960
quarter 4	3,800	90,783	6,988	73,086	-	-	6,800	356,070	181,457	537,527
annual	26,570	296,008	19,048	822,240	30,000	-	7,000	2,308,610	1,200,866	3,509,476
	percent of annual total New Bedford food fish									
quarter 1	0.8	4.1	-	13.0	-	-	-	-	17.9	
quarter 2	1.0	9.2	-	30.0	1.7	-	-	-	41.9	
quarter 3	-	3.8	1.0	19.4	0.8	-	-	-	25.1	
quarter 4	0.3	7.6	0.6	6.1	-	-	.6	-	15.1	
annual	2.2	24.6	1.6	68.5	2.5	-	.6	-	100.0	

(continued)

Table 2. (cont.) Catch of fish by 13 vessels by quarter and port - Stonington, Connecticut vessels, 1966-67 conditions

	Cod	Blackback	Fluke	Yellowtail	Scup	Whiting	Mixed	Industrial	Total Excluding Industrial	Total
	pounds									
Greenport and Point Judith[1]										
quarter 1	12,926	108,243	-	51,571	70,000	-	-	163,495	242,740	406,235
quarter 2	16,550	203,900	1,277	148,319	36,114	19,441	669	1,093,745	426,270	1,520,015
quarter 3	9,203	252,822	20,581	363,438	151,052	1,400	1,618	510,835	800,114	1,310,949
quarter 4	31,435	333,279	6,884	307,124	25,500	3,250	20,155	-	727,627	727,627
annual	70,114	898,244	28,742	870,452	282,666	24,091	22,442	1,768,075	2,196,751	3,964,826
	percent of annual total Greenport and Point Judith food fish									
food fish										
quarter 1	0.6	4.9	-	2.3	3.2	-	-	-	11.0	
quarter 2	0.8	9.3	0.1	6.8	1.6	0.9	-	-	19.5	
quarter 3	0.4	11.5	0.9	16.5	6.9	0.1	0.1	-	36.4	
quarter 4	1.4	15.2	0.3	14.0	1.2	0.1	0.9	-	33.1	
annual	3.2	40.9	1.3	39.6	12.9	1.1	1.0	-	100.0	

[1] Combined to preserve individual identity.

Table 3. Per cent species by port of all ports.

	Cod	Blackback	Fluke	Yellowtail	Scup	Whiting	Mixed	Industrial	Total Excluding Industrial	Total
Stonington	.637	.411	.195	.012	.450	.731	.717	--	.301	.166
New Bedford	.100	.135	.321	.480	.052	--	.070	.566	.240	.387
Greenport and Point Judith 1/	.263	.454	.484	.508	.488	.269	.216	.434	.460	.448

1/ combined to preserve individual identity

A quite different pattern is shown at New Bedford, where 70 percent of the food fish landings of the Stonington vessels is yellowtail, followed by 25 percent blackback. About 2.3 million pounds of industrial fish are also landed at New Bedford. Greenport, Long Island lands the same two food fish species as New Bedford. Blackback and yellowtail each make up about 50 percent of the catch of Stonington vessels landing at Greenport. Point Judith receives significant quantities of three species of food fish from Stonington vessels: blackback, yellowtail, and scup, with 38, 30, and 23 percent respectively of total food fish delivered. In addition Point Judith lands about 1.8 million pounds of industrial fish from these vessels.

Based on these questionnaires, thirty percent of the catch of Stonington vessels is landed at Stonington. The Electric Boat report shows slightly less than 30 percent of the catch is landed at Stonington. The remaining 70 percent of the catch is split fairly evenly between the other three ports of Point Judith, New Bedford, and Greenport.

Table 4 shows the quantity and estimated value of landings by species and by port. Quarterly landings data on quantity and value are presented for Stonington; annual data for the other three ports. The value had to be computed and was done by the following method. About half the reported catch had an accompanying value figure. An average price per pound

Table 4. Estimated Value of Landings by Stonington, Connecticut Vessels, 1966-67 Conditions

	Cod	Blackback	Fluke	Yellowtail	Scup
Stonington					
1st quarter					
price $	.104	.074	--	--	--
quantity lb.	57,875	120,875	--	--	--
value $	6,019	8,945	--	--	--
2nd quarter					
price $	.084	.056	.230	.120	.136
quantity lb.	34,625	427,125	2,275	18,700	90,300
value $	2,909	23,919	523	2,244	12,281
3rd quarter					
price $	--	.080	.244	.120	.325
quantity lb.	--	173,700	8,050	300	99,357
value $	--	13,896	1,964	36	32,291
4th quarter					
price $	.094	.094	.202	.120	.161
quantity lb.	77,287	183,105	1,238	1,000	68,665
value $	7,265	17,211	250	12	11,055
Annual					
price $	.094	.071	.236	.120	.205
quantity lb.	169,787	904,805	10,763	20,000	258,322
value $	15,960	64,241	2,540	2,400	52,956
New Bedford					
Annual					
price $	.098	.109	.318	.1305	.193
quantity lb.	26,570	278,008	19,048	832,240	30,000
value $	2,604	30,303	6,057	108,607	5,800
Greenport and Point Judith 1/					
Annual					
price $	.095	.074	.251	.077	.205
quantity lb.	70,114	998,244	15,557	870,452	282,666
value $	6,672	74,228	3,908	67,413	57,938
Total all ports					
quantity lb.	266,471	2,199,057	59,353	1,712,692	570,988
value $	25,236	168,772	12,505	178,420	116,694

(continued)

1/ Combined to preserve individual identity

Table 4. (continued) Estimated Value of Landings by Stonington, Connecticut Vessels, 1966-67 Conditions

	Whiting	Mixed	Industrial	Total Excluding Industrial	Total
Stonington					
1st quarter					
price $	--	.08	--	.083	--
quantity lb.	--	3,600	--	182,350	--
value $	--	288	--	15,255	--
2nd quarter					
price $	.096	.08	--	.074	--
quantity lb.	25,400	17,000	--	615,425	--
value $	2,438	1,360	--	45,674	--
3rd quarter					
price $	.076	.08	--	.160	--
quantity lb.	25,800	14,300	--	321,507	--
value $	1,961	1,144	--	51,292	--
4th quarter					
price $	.093	.08	--	.105	--
quantity lb.	14,175	39,607	--	385,077	--
value $	1,318	3,169	--	40,280	--
Annual					
price $	.089	.081	--	.0997	--
quantity lb.	65,375	74,507	--	1,504,359	--
value $	5,818	6,035	--	149,950	--
New Bedford					
Annual					
price $	--	.08	.013	.129	.053
quantity lb.	--	7,000	2,308,610	1,192,866	3,501,476
value $	--	560	30,012	183,943	153,931
Greenport and Point Judith					
Annual					
price	.082	.080	.0086	.0925	.048
quantity lb.	24,091	3,952	1,768,075	2,296,751	3,001,777
value $	1,975	316	15,205	212,450	143,867
Total					
quantity lb.	89,466	103,949	4,076,685	5,001,967	9,078,661
value $	7,793	6,911	45,217	516,331	561,548

by species, by quarter, and by port was computed for that part of the catch with value reported. This average price was used to obtain a value for the total catch. This raises the possibility of error in estimating total value and should be kept in mind when using the data. The prices, which can be derived from Fishery Statistics of the U.S. 1966 for these ports (or states) compared quite closely to those computed by the method in this analysis. Therefore, these prices and total value figures should be quite reliable.

There may be some basis for concern among the fishermen that prices are not as favorable at Stonington as at other ports. For example, blackback, the most important species at Stonington receives $.07 per pound, annual average, while at New Bedford the price is $.11, Greenport $.08, and Point Judith $.07. Although, 900,000 pounds of blackback were landed at Stonington and only 278,000 pounds at New Bedford, the income from blackback landed at Stonington was only slightly over twice that at New Bedford, ($64,000 compared to $30,000). Scup, the second most important species at Stonington receives the same price at each port, although, it can be seen that there is considerable seasonal variation in price at Stonington.

It should be noted in the seasonal price variation at Stonington that the second quarter prices for the two most important species, that is blackback and scup, are lower than for other quarters. The second and third quarters are the quarters of highest landings at the port. It would appear

from the basis of this two-year record that possibly some of the catch should be shifted to the third quarter where prices for these two species are much higher. Any seasonal shift in landings, of course, should be made on the basis of other factors, such as, availability of species by season and difficulty of fishing by season. It is probably true that the days lost due to bad weather in the first quarter cannot be changed significantly, therefore, shift to this quarter probably would not be made.

III. Implications of Returning All Vessels to Stonington

The first preference of the Stonington fishing fleet is to find a suitable outlet for their catch at Stonington so that the entire fleet registered there could return to Stonington and fish full time at that port. Presumably the main condition on which the fleet could be expected to do this would be that the income of the fleet be maintained at its current level or preferably increased by some significant amount. The bottom of Table 4 shows the computed income of the Stonington fleet at all ports. This is shown to be $516,000 income from food fish and an additional $45,000 is received from industrial fish or a total income of $561,000 to the fleet. The question then, is what implications would this be for landings at Stonington if total income is to be maintained at its present level?

Under current price and cost conditions an income of $600,000 per year to these 13 vessels would probably attract most of them to fishing full time at Stonington. This figure is used in the analysis that follows. It is assumed that the percentage breakdown of species landed at Stonington would remain the same and the total catch would increase to the level which would yield $600,000 per year. The species percentage breakdown is held the same, as it is assumed that this pattern is determined by resource availability. It is probable that only two or three species are actively fished, while the remainder is incidental catch. Table 5 shows that in order to maintain this income and keep the same percentage catch by species, the catch must increase to 400 percent of the present landings at Stonington. A catch of 6,019,000 pounds is required to generate an income of $600,000 under 1966-67 prices. Whether or not, the resource potential in the area fished by vessels landing at Stonington is sufficient to withstand this fishing pressure is not known, and must be ascertained if this or a similar plan is adopted. If a market development plan is successful, this volume of fish may not by needed to return $600,000 to the fishermen. Marketing costs may be lowered, depending on the adopted plan. A more likely development is that higher prices will be received due to the selling of a premium product.

Table 5. Quantity and Value of Landings at Stonington Needed to Equal Value of Landings at all Ports

	Cod	Blackback	Fluke	Yellowtail	Scup	Whiting	Mixed	Total
Percent species is of all fish landed	11.3	60.1	0.7	1.3	17.2	4.3	5.0	100.0
Price per pound ($)	.094	.071	.236	.120	.205	.089	.081	.0997
Pounds	679,729	3,622,340	43,089	80,069	1,034,180	261,725	298,285	6,019,416*
Value ($)	63,895	257,186	10,169	9,608	212,007	23,294	24,161	600,000*
Present quantity landed								1,504,359
Present landed value								149,950
Percent increase in quantity and value needed								400

* totals do not add due to rounding

IV. The Lobster Fishery

Little attention is given by the Fishermen's Association to the approximately 20 lobster boats at Stonington in 1967. The data on these boats was not collected as a part of the survey. This fishery has only developed very recently. Reported catch from pots and traps was 561,500 pounds valued at $478,607 in 1966, although this probably seriously understates the actual landings. Thus the landings of the 20 boats may be extremely important. The current status of the Stonington lobster catch should be ascertained.

V. Action Plan

In discussion with the fishermen it was found that the interest is nil in becoming involved in processing or marketing of the fish. A cooperative was suggested as one possibility. However the fishermen are much more interested in attracting an outside party to establish a filleting plant at Stonington. A filleting plant employing 30 - 40 people operated there during the 1950's. Apparently, one of the reasons for its demise was the fact that the supply to the plant was very unreliable. When scup was abundant, it was fished at the exclusion of other species. Since this fish is not filleted, the plant was idle during these times.

For these reasons, and the fact that this very fresh product would seem to have an outlet in premium markets, it is recommended that market potential be investigated for

dressed iced fish. It should be possible to deliver most of the catch to food outlets within three days after being caught. If these markets are established, it is recommended that the fish be gutted, boxed, and iced at sea and delivered to the port ready for shipment. This would eliminate the problem of disposal of the waste from dressing. Such a set-up would eliminate the problem of a processing plant located at Stonington and would at the same time provide a fish which could be sold to selected markets directly in that form.

The lobster catch should be suited for the same kinds of markets as the fresh-caught fin fish. Thus investigations and recommendations for market development should include the lobster fishery.

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14. A Price Incentive Plan for Distressed Fisheries by A. A. Sokoloski and E. W. Carlson.

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32. Economic Study of San Pedro Wetfish Boats by W. F. Perrin and B. Noetzel.

33. A Survey of Fish Purchases by Socio-Economic Characteristics - First Quarterly Report - February, March, April, 1969

34. A Survey of Fish Purchases by Socio-Economic Characteristics, Second Quarterly Report - May, June, July, 1969 by D. Nash.

35. A Simplified Guide to Benefit-Cost Analysis for BCF Programs by F. Bell.

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38. Market Potential for the San Pedro Wetfish Fishery by D. Nash.

39. Pertinent U. S. Trade Barrier Information by "Master Plan" Fisheries by Jurate E. Micuta.

40. An Analysis to Determine Optimum Shrimp Fishing Effort by Area by Victor Arnold.

41. A Survey of Fish Purchases by Socio-Economic Characteristics, Third Quarterly Report - August, September, October, 1969, by Darrel A. Nash.

42. Investigation of Fish Landing Patterns at Stonington, Connecticut with a View to Development of New Markets by Darrel A. Nash.

The goal of the Division of Economic Research is to engage in economic studies which will provide industry and government with costs, production and earnings analyses; furnish projections and forecasts of food fish and industrial fish needs for the U. S.; develop an overall plan to develop each U. S. fishery to its maximum economic potential and serve as an advisory service in evaluating alternative programs within the Bureau of Commercial Fisheries.

In the process of working towards these goals an array of written materials has been generated representing items ranging from interim discussion papers to contract reports. These items are available to interested professionals in limited quantities of offset reproduction. These "Working Papers" are not to be construed as official BCF publications and the analytical techniques used and conclusions reached in no way represent a final policy determination endorsed by the U. S. Bureau of Commercial Fisheries.