

Crew Problems in the New England Fishing Fleets and a Place for Education

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WHEREAS SOME 10 YEARS AGO there was little trouble in finding adequate crews for the New England fleet, there is today a growing problem which appears likely to snowball unless an effective means is found to attract capable, educated and ambitious young men to the industry.

THE PRESENT POSITION

The average age of captains and officers on vessels in the region is high; for instance, the median age of Boston fishermen has been placed at 57 years, and the lack of sufficiently able replacements is illustrated by the fact that on some vessels the engineer can do little more than start and stop the engine, while on others men are in charge of a watch who several years ago might not have been kept aboard. On deck the problem is to attract men who are capable of performing the necessary duties, and at the same time maintain agreed manning scales.

The extent to which the above holds true varies between ports and vessels. The top earning vessels rarely have to look for a crew. The lowest earning and worst kept vessels, as always, face the biggest problem, but this is now spreading up through the fleet so that good vessels and captains are becoming involved.

Vessels sailing from the principal ports in the region operate under agreements between owners associations and labor organizations. These agreements control the distribution of the gross stock of a trip, the allocation and definition of expenses and where they are chargeable, and perhaps even more important, the length of a trip, and the number of days to be spent in port between trips; also included are sections detailing the duties and responsibilities of owners and crewmen. The agreements also set out rigid manning scales for different size vessels, depending on the type of fishing carried out.

As examples, in New Bedford, for draggers the maximum length of trip is 6 days from the time the gear is first placed on the bottom, and this must be followed by 3 full days in port. For scallopers the maximum trip length is 10 days followed by 4 days in port.

There is one particular exception to operation by such agreements, and that is in the port of Point Judith, Rhode Island, where a very successful fishermen's cooperative operates; both crews and captains/owners are members of the "coop," which has proved an extremely successful arrangement. Vessels working from the coop have until very recently had little trouble attracting good young men to the fleet, but within the last year the vacancies appear to have become more difficult to fill. As no manning scales are in operation, vessels work with smaller crews than those common in other ports and the operation is beneficial to all concerned.

Financial returns

The lay arrangement for division of gross stock common in the region is illustrated in Appendix 1. The particular figures are applicable perhaps to an 80-foot side trawler between 10 and 15 years old, having a value of \$80,000 and a crew of 6 men. The "Broken 40" lay is assumed, that being the most common arrangement for this type of vessel. Under this arrangement the expenses incurred in the vessel operation are divided into three categories: vessel expenses arising as a direct result of the particular trip; expenses chargeable to the crew and those chargeable to the owner or "boat."

Expenses arising from the actual trip (see Appendix 1) are deducted from the gross stock earned from the trip and the remainder is then divided 40% to the boat and 60% to the crew. Before dividing the crew share among those aboard, expenses chargeable to the crew are deducted; the captain receives 10% of the boat share in addition to his portion of the crew share. From the boat share, the owner has to meet the costs of maintenance, insurance, replacement or additional equipment, financing payments and other expenses not covered by the deductions from the gross stock as trip expenses.

One particular exception to this lay arrangement is the scalloper fleet. In these vessels, the boat takes a straight 35% of the gross stock with no deductions; trip and crew expenses are then subtracted from the remainder to arrive at the crew share. This method provides slightly greater overall earnings by the boat, but these are offset by greater costs which arise in this fishery.

When compared with arrangements in other countries, it is noted that proportionally the earnings of the boat are lower and those of the crew higher. For instance, with vessels of this size in the United Kingdom the net earnings once trip expenses have been deducted are divided 50:50 between boat and crew.

As can be seen from Appendix 1, crew earnings are certainly as good and probably better than earnings made by men with the same education and experience ashore. On the other hand, the returns to the vessel are low, and do not appear to provide owners with the capital needed for investment in new vessels.

As a result, the average age of vessels is high (estimated 12 to 15 years) with many vessels over 20 years of age. Living and working conditions aboard the older vessels are poor compared with the newer vessels that are slowly coming into use, and when comparison is made with countries such as Norway and Canada, or even other areas of this country, the difference is marked.

The fishing fleets of New England have for many years been built by immigrants from traditional fishing countries. For instance, the Boston fleet has been skippered and officered almost entirely of Nova Scotians and Newfoundlanders, while Norwegians predominated in New Bedford and Portuguese in Gloucester.

General improvement in living conditions and development of the fishing industries of those countries, coupled with changes in the U. S. immigration procedures, have resulted in a steady decline in immigrants until today very few, if any, come into this country to work in the fishing industry.

Second generation fishermen from the immigrant families in many cases continue in the industry, but many young men are either steered from the sea by their fathers or lured by the bright lights and relatively easy working conditions ashore. In many cases, educational opportunities steer boys from the fisheries.

It has taken several years for the lack of recruits from this traditional source

to be felt, but as many of the experienced men retire a vacuum is left which must be filled from area residents.

Vessels working in the New England fisheries, although in many cases having old hulls, are relatively sophisticated in terms of equipment, particularly engineering and electronic, and as fishing power increases so does the sophistication of equipment. As an example, where simple mechanical winch drives and controls have been adequate for years, hydraulic drives and air controls are now becoming necessary.

This technical development makes it necessary for a fisherman to have a higher educational background than has been necessary in the past and serves to aggravate the problem of crew recruitment.

Insufficient young men are coming into the industry to ensure that crew requirements are met and of these very few appear to have the education and ambition to make it a career, despite the relatively high financial returns.

The future

On talking with young men who are interested in fishing and the sea, three points appear in nearly every conversation: (1) status, (2) financial return and (3) living and working conditions.

Let us look at these at greater length.

(1) STATUS

Fishing in general appears to be an occupation considered to have little status or respectability. The captain of a vessel carries a heavy responsibility; it is on his shoulders that the success of the operation is placed. In common with the manager of a shore-based enterprise of similar worth, he should have a sound knowledge of the technical factors involved, together with an understanding of the scientific principles on which his operation is based, and above all be an efficient financial and operational manager.

Surely such a man should be able to command respectability and be given the status to which his ability entitles him.

(2) FINANCIAL RETURN

Again referring to Appendix 1, earnings appear to compare favorably with other industries and do not appear to represent much of a problem.

(3) LIVING AND WORKING CONDITIONS

Compared with living and working ashore, conditions aboard all but the most modern vessels appear to leave much to be desired; the work is hard, the hours long and the living conditions have not kept pace with improvements ashore and are certainly a deterrent to many of the young men with whom the writer talks almost daily.

It appears, then, that the two factors which influence young men who are drawn by inclination to the sea and fishing but fail to enter the industry are status and respectability coupled with the living and working conditions involved; earnings appear to be acceptable. Perhaps the biggest attraction is that the possibilities are sky high and opportunities there for those who are willing to work for them.

So far as living and working conditions go, the technical knowledge and ability to provide excellent accommodations and reduce excessive labor is available as demonstrated in other areas of this country, and in other countries; what seems to be lacking is the financial ability to use the available "know

how." The low return to the boat owner, already mentioned, does not place him in a position where he can finance new vessels out of earnings, and at present, arrangements for loans and other financial assistance, whether governmental or industrial, do not appear to provide sufficient leeway to benefit greatly the New England fleets.

At the same time the fishermen and owners appear reluctant to move away from the traditional construction of vessels. Although there is not the room in New England for almost complete standardization as practiced in the shrimp fisheries, useful cost reduction should be apparent if classes of vessel could be constructed and multi-building techniques employed.

While partial standardization may assist, more liberal financing arrangements are necessary before outmoded hulls can be replaced by modern vessels providing good living standards and less arduous working conditions.

Turning now to the question of raising the status and respectability of the fisherman, it seems necessary that his image be raised in both his own and the public's eyes. Mention has already been made of the advances in technical sophistication now firmly established; these are leading to a greater technical educational background being required by fishermen. In this country education and status tend to go hand in hand, so that a college education is almost a necessity for a young man to make his way in a chosen career.

In agriculture, the industry most akin to commercial fisheries, status and respectability are certainly present, and any young man can enter a college to receive training in the field. Nearly all industries, including agriculture, have programs available at the technical and vocational levels in addition to college. It is acknowledged that the reason why American agriculture leads the world is due to the development of the Land Grant concept with its associated educational and applied research programs. It seems surprising, therefore, that the fishing industry does not have the advantage of a similar program—the feature underlying Russia's and Japan's outstanding developments in commercial fisheries.

Various training programs have been offered from time to time in New England, all at the operative or vocational level. There is a vocational high school program in Gloucester and a Department of Labor program in New Bedford. Both of these are aimed at producing deckhands, and neither can really claim to improve the image of the industry and the fisherman. While the training of the unemployed by short courses may assist in alleviating the shortage of men at the deckhand level, no program of this nature appears likely to provide the capable captains and technicians (engineers and navigators).

It is the writer's belief that not until a young man can enter college to earn a Bachelor's Degree will the necessary standard of youth be attracted and the necessary status provided the industry. A start has been made in New England by the establishment of a 2-year associate degree program in commercial fisheries at the University of Rhode Island, from which the first students will graduate in June 1969. The program is divided into 2 years, each of 2 semesters, and during the summer between the college years all students are placed aboard commercial fishing vessels for 3 months. Naturally, students cannot expect at the end of the 2 years to be capable of running their own vessels immediately, but in the opinion of area captains who have been co-operating, they will be ready to do so in a very much shorter time than had they started on the deck of a vessel and worked their way up.

As may be seen from the layout of courses shown in Appendix 2, the cur-

riculum is a blend of basic education, technical education, training and business, based on the idea that a captain must have a sound technical knowledge together with the ability to manage his operations effectively. It was put together with the cooperation of area industry, fishermen's organizations, and government agencies. Naturally, changes will occur, dictated both by the requirements for efficient education and developments in the industry.

The intention behind the basic or background subjects, such as English, speech, math and physics, is to provide students with the knowledge they need for use in their technical subjects; they are tools as necessary as a wrench or Loran set to the young fisherman of today. English and speech training is provided to assist the students in communicating both in written and verbal form; the math and physics are a necessary preparation for navigation, engineering, vessel construction and appraisal, in addition to their more general application.

Summary of fisheries technical subjects

SEAMANSHIP—covers practical rope and wire work, the correct use of rope and wire, rules of the road and all aspects of vessel handling. In addition to the necessary classwork, particular emphasis is placed upon practical work both in the laboratory and aboard the training vessels.

NAVIGATION—The first course covers pilotage and chartwork, and the second course extends this into celestial navigation and electronic systems. Emphasis is placed on practical application of the subject to suit the needs of fishermen, through simulators in the laboratory and practical work ashore and afloat.

FISHING GEAR—An introduction to the various fishing methods in use throughout the world is provided in the first course. In addition to classroom work, the students are introduced to the operations of the various methods aboard the vessels, and emphasis is placed on practical twine work including hanging a net. The second course concentrates on trawling methods including the design, construction and operation of nets, including midwater trawls. The third course deals with other principal fishing methods, purse seine, seine net, gill net and longline in a similar manner.

ENGINEERING—The first course is concerned with the diesel engine and its associated systems. Emphasis is placed both on understanding the operation and the maintenance and repair of these units. In the laboratory students work on a variety of engines using the appropriate manuals. The second course covers the other engineering systems found aboard fishing vessels, including mechanical and hydraulic drives for winches and other gear, air, electrical and pump arrangements. In the laboratory, students set out and test applications of the various systems.

VESSEL CONSTRUCTION AND APPRAISAL—deals with safety of vessels with particular emphasis on stability, powering, construction materials and arrangements, simple application of economics and vessel design criteria as a basis for decision making.

FISHERY HYDROGRAPHY—is the application of knowledge, equipment and the oceans to the work of a fisherman. It emphasizes the coordination of knowledge and ability from all areas in successful fishing operations, with a considerable amount of time spent aboard the training vessels.

BIOLOGY AND CONSERVATION—emphasizes the application of fisheries biology to the work of a fisherman, including fisheries management and the effect of pressure on fish stocks.

FISHERY TECHNOLOGY—is concerned with the handling, storage, spoilage and processing of fishery products from the time they are taken aboard until they reach the consumer. Emphasis is placed on the correct handling and storage for a quality product and on the various processing methods in use.

The principal objectives of the group of business and economics courses are to provide a background knowledge of the principles involved and their application to the business operations of a vessel, cooperatives and industrial enterprises.

It should be pointed out here that the subject matter of the technically oriented courses is not restricted to methods presently in use in the New England area, but covers methods and applications the world over. Naturally in the practical laboratory work there is a bias towards local methods, as the majority of students will enter the area fishery, but other techniques are introduced as applicable.

Mention has already been made of practical laboratory work; laboratories are provided for seamanship, nets and gear, engineering, electronic aids and navigation, and these will be extended to include fishery technology and vessel technology during the coming year. Considerable emphasis is placed (as may be seen from the hour allocations of Appendix 2) on practical applications in all areas and special attention is being paid to building up a sound program of instruction at the technical level by coordinating practice with theory.

Also available are two vessels used both during and outside regular course work for training.

The 47-foot *GAIL ANN* is outfitted for bottom and mid-water trawling, purse seining and seine netting, being provided with a very complete and diverse complement of systems and electronic aids. When at sea during classwork, the students work the ship entirely, staff members being aboard only in an instructional capacity and in case of difficulty. Each student takes turns as captain, navigator, engineer and deck hand.

A 21-foot vessel is outfitted to use a small trawl, gill nets, long lines and pots; this boat is used in the early stages of seamanship training and in fishing gear practical work.

Faculty concerned with the technical courses in the program come from the United Kingdom, Canada and this country. The problem of finding competent and qualified faculty appears one of the most difficult to overcome in setting up a program such as this where more than the practical knowledge of most fishermen is required.

Another problem to be faced is that of equipment and textbooks. In contrast to programs in other disciplines, texts, equipment and teaching aids are simply not available for fishery educators. Many technical books are available but they are not really suitable for use as texts.

It is necessary, therefore, for the instructors to produce their own texts and construct their own teaching aids.

APPENDIX 1

TYPICAL DIVISION OF GROSS STOCK FROM ONE TRIP—"BROKEN 40 LAY" (80 ft. vessel, worth \$80,000, 6 crew)		
Gross stock (from 6 days trip, say 35,000 lbs. fish)		\$5,000.00
Trip expenses		
Diesel fuel	\$275.00	
Ice	140.00	
Lube oil	30.00	
Filters	6.00	
Airplane for fish spotting	—	
Lobster pegs	—	
Lumpers	60.00	
Equipment rental	30.00	
	\$541.00	- 541.00
(In addition, a percentage of the gross stock may be taken by owners associations, etc. to cover any particular promotional or similar costs)		
Net		\$4,459.00
Boat share (40% of Net)		\$1,784.00
Crew share (60% of Net)		2,675.00
Crew expenses		
Food	\$140.00	
Gloves	16.00	
Welfare, etc.	50.00	
Lumpers (if hired by crew to replace them during unloading)	—	
	\$206.00	- 206.00
Net crew share		2,469.00
Share per crew man (6 men)	411.50	
(In addition captain is paid 10% of boat share = 178.40)	+ 178.40	
Captain's share	589.90	

Over one year

During a typical year such a vessel might make 30 to 35 trips of 6 to 7 days duration, grossing some \$120,000 over the year.

Typically, the earnings for a crew member might be \$10,000, and for a captain \$15,000 - \$16,000.

APPENDIX 2

COURSE STRUCTURE, TWO YEAR ASSOCIATE DEGREE IN COMMERCIAL FISHERIES UNIVERSITY OF RHODE ISLAND

	FIRST YEAR			<i>hrs./week</i>	
	<i>lect.</i>	<i>lab.</i>		<i>lect.</i>	<i>lab.</i>
<i>1st Semester</i>			<i>2nd Semester</i>		
English Composition	3	—	Economics of Food Prod.	3	—
Introduction to Business	3	—	General Physics	4	2
Algebra & Trigonometry	3	—	Marine Engineering Tech.	2	6
First Aid	1	—	Navigation	3	4
Seamanship	2	3	Biology and Conservation	3	—
Fishing Methods and Gear	3	6			

SECOND YEAR					
<i>1st Semester</i>	<i>hrs./week</i>		<i>2nd Semester</i>	<i>hrs./week</i>	
	<i>lect.</i>	<i>lab.</i>		<i>lect.</i>	<i>lab.</i>
Fishing Gear	2	3	Speech	3	—
Marine Engineering Tech.	3	3	Personnel & Ind. Rel.	3	—
Vessel Technology	3	—	Marketing of Food Prod.	3	—
Navigation	2	4	Fishing Gear	3	3
Accounting Principles	3	—	Fishery Hydrography	2	6
Fish Technology	3	—	Fisheries Problems	1	—

Notes

1. Between 3 and 4 hours vessel time each week is included in the above structure; additional time, usually between 3 and 4 hours weekly is made available to students together with extended trips of 24 to 48 hours duration.
2. Each semester is approximately 14 weeks.
3. During the summer vacation between the 2 school years, students are required to work aboard selected commercial vessels for a minimum of 8 weeks. A very full log book is required from this period including complete details of the vessels, gear and operation.